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PART I.

Original Contributions.

CASES OF MALIGNANT TUMOURS IN THE EYE, OR IN
CONNEXION WITH THE NERVES.

By J. W. HULKE.

CASE I.—*Retinal Glioma in each Eye, extending along the Optic
Nerves within the Skull—Death from Meningitis.*

IN the third and fourth volumes I published eleven cases under the title "Carcinoma of the Eyeball." Since then Virchow's valuable criticism of several of these,* and a better acquaintance with the minute structure of morbid growths, have taught me that I used the title in a wider sense than a strict anatomical definition allows, and that true cancer is less common in the eye than I had thought. I mean a cancer characterized by an epitheloid type of cell, an organoid disposition of the cell-masses, and their out-budding into and intercalation amongst the normal tissues

* Virchow. Die Krankhaften Geschwülsten. Berlin, 1864.

as something superadded to them, and the absence of a strictly intercellular substance.*

The morbid growths which, in the third, fifth, and three last cases of the series, I then regarded as medullary cancers, I have now little doubt were gliomas, tumours originating, according to Virchow, in the interstitial connective tissue (neuroglia) of the retina. The softer varieties consist of small rounded cells, about the size of a pus or blood corpuscle, embedded in a finely granulated intercellular substance, and occasionally massed in plaques resembling those formerly considered characteristic of myeloid tumours; while in the firmer varieties fusiform cells occur, and the intercellular substance is fibrillated. Both kinds are abundantly supplied with blood-vessels.

The neuroglial origin of these tumours has been deduced from their similarity to cerebral gliomas rather than verified by direct investigation, which is not surprising, since generally all traces of the retinal tissues have disappeared at the time when extirpation of the eyeball is commonly practised. Schweigger's demonstration of the origin of the glioma cells in the cells of the granule layers, quoted by Virchow, is open to doubt, for the outer and the inner granules being certainly nervous, and not of the nature of connective tissue, the morbid growth if it originated in these was not a glioma. I have not myself been more successful in demonstrating the origin of intraocular gliomas, although I have minutely examined several with great care, but in the case about to be described, where a retinal glioma in each eye extended along the optic nerves within the skull, I distinctly observed the growth of the glioma in the connective tissue separating the bundles of nerve fibres in the nerve-trunk in front of the optic commissure.

All the intraocular gliomas which I have seen have occurred in children, the age in which cerebral gliomas

* Virchow, *loc. cit.*

are most frequent. Wherever I have had an opportunity of watching the progress of an intraocular glioma, or of examining it minutely after enucleation of the eyeball, I have found distinct evidence of local infection. This infectiousness, and the tendency of the gliomas to fungate, often cause them to be mistaken for cancers; but besides their anatomical differences, the gliomas, as far as my present knowledge of them extends, never infect parts at a distance as cancers do, and are never accompanied with secondary tumours in the abdominal and thoracic viscera.

They are very liable to fatty and earthy degeneration, which so change their rough appearances that when altered in this way they are not infrequently mistaken for tubercle. But of this latter in the eye we have scarcely any exact knowledge, for the cases recorded by the older surgeons are of no value whatever for proving its occurrence, and the data for its differential diagnosis with the ophthalmoscope have yet to be worked out. I have not myself seen a single case of tubercle which was not open to doubt. From the uncertainty of the differential diagnosis of an intraocular morbid growth in its earliest stage, we deduce the safe general rule to remove the eye whenever one is present, whatever its nature (unless a simple cyst or stationary congenital sarcoma such as those occasionally occurring in the iris), since glioma, when left alone, kills scarcely less certainly than cancer, and a tuberculosed eye is not merely destroyed as an organ of sight, but may be a source of much trouble. The local nature of the infection in glioma makes the prognosis in this much more favourable than in cancer, by increasing the chances of its non-recurrence after removal.

February 27th, 1865. A child, two years old, was brought to the Middlesex Hospital by his parents, fearing that he was blind.

Both pupils were widely dilated and motionless, and a brilliant yellow reflection from the bottom of each eye was conspicuous, even at the distance of several feet. This proceeded from the

surface of a tumour, growing into the vitreous humour. Each tumour had a tuberos shape, and its surface was overlaid with a network of fine, frequently-branching, anastomosing vessels, and a few large tortuous veins, and also blotched with crimson spots of extravasated blood. In the left eye the tumour reached nearly to the back of the lens; in the right eye it had not advanced quite so far. It is needless to say that both eyes were absolutely blind.

It was a well grown and apparently healthy child. Both parents and their other children, several in number, were healthy. The first suspicion that something was wrong with the child's eyes arose at Christmas, when he began to stumble over things lying at his right hand. Soon after this the mother noticed a bright spot in the right eye, and a month later a similar spot in the left.

The resemblance of the tumours to those in the 3rd, 5th, 9th, 10th, and 11th cases, published in vols. 3 and 4, inclined me to regard them as retinal gliomata.

That the tumours were actually morbid growths springing from the retina, and not simply elevations of the retina, pushed forwards by serum or a solid mass behind it, was inferable from the character of the vascularity and the complete concealment of the choroid. As both eyes were affected, and the child, if it survived and grew up, would have to earn its living by manual labour, I did not advise extirpation, and the parents returned home with the child.

Just one year later, February 26, 1866, he was again brought to me. Now a large fungating tumour protruded from the right eyeball, between the greatly distended eyelids. Its ulcerated surface was coated with a thick crust of dried ichor and blood, and bled freely when this was accidentally detached. The mother told us that the eyeball had burst about a month before, and that for some time previously the child had suffered much, scarcely sleeping, and losing flesh.

The left eyeball was now enlarged, the cornea dull, the pupil dilated, the lens pushed forward, squeezing the iris against the cornea, but still sufficiently transparent to permit a dull white object behind it to be seen.

His manner was very curious; he never moved unless disturbed, and then cried, but lay day and night on his face

with his knees touching his chin, and his forehead buried in the pillow.

Having in similar cases witnessed much temporary relief from the extirpation of the fungating tumour, I proposed it simply as a palliative, warning the parents to expect a quick return.

As they gladly acceded, next day the child was put under chloroform, and I extirpated the tumour and eyeball with scissors and forceps, dividing the optic nerve at the apex of the orbit, detaching the soft tissues from the bony walls, and then pressing into the bottom of this cavity a ball of cotton wool, smeared with chloride of zinc paste.

The first night the child slept little, and next day the eyelids were very swollen. In three or four days suppuration had set in, and on the sixth day the cotton wool, being loose, was withdrawn, and the orbit syringed out with Condy's lotion. This latter was afterwards repeated twice a day, in order to flush out the exfoliated sloughs caused by the zinc, and the discharges. During this time the child slept and eat well, gaining weight and strength. The wound granulated and scarred in front, but at the apex of the orbit a button of exuberant granulations budded from the optic nerve. A month after the operation meningitis set in, and ended fatally on the twelfth day.

After death the left eyeball and the brain were hardened with alcohol. The extirpated eyeball was examined both in the fresh and hardened state. It was filled with a soft, pinkish-grey tumour, continuous in front with a fungating mass, which protruded through the ciliary circle of the sclerotic, the cornea having disappeared, and was prolonged behind into the greatly swollen optic nerve. Sections of the tumour displayed, under a magnifying power of 240, small round cells ranging between $\frac{1}{4300}$ th and $\frac{1}{2730}$ th, with one or two minute nuclei, closely packed in a scanty intercellular substance, structureless when fresh, but made granular by chromic acid and alcohol. (Fig. 1.) The tumour was pervaded throughout by a rather close net of blood vessels.

The free edge of the ciliary sclerotic was swollen and succulent through infiltration with small cells resembling those of the tumour. Where they were less abundant, their evolution out of the connective tissue corpuscles was apparent.

The choroid was distinguishable only in the front of the

eyeball, and here it was very thick, owing to the presence of cells resembling those of the tumour. The back of the eyeball and the optic nerve were embedded in a tuberos mass, identical in its structure with the intraocular growth with which it was continuous through the sclerotic. The orbital end of the divided optic nerve and the intracranial part of the nerve were much enlarged. This enlargement extended along the right side of the optic commissure to just behind its posterior margin. It proceeded from the infiltration of the nerve with cells rather smaller, but in other respects similar to those composing the ocular tumour (Fig. 2.) Traces only of the nerve fibres were to be seen.

The retina in the left eye formed a solid greyish axial tumour, separated from the choroid by an albuminous exudation (Fig. 3). The cut surface of the tumour was mottled with many small whitish dots, which were minute patches of a fatty disintegration, and with red blotches of extravasated blood. The minute structure of the tumour agreed with that of the tumour of the right eye. The orbital part of the optic nerve was not obviously enlarged, yet inside its sheath, and amongst the bundles of nerve fibres, there were masses of cells identical with those of the intraocular tumour.

The cranial part of the nerve was obviously swollen and hard. Sections of it parallel to, as well as across the nerve fibres, exhibited an abundance of small circular cells replacing the connective tissue between the nerve bundles, and clearly originating in it, a point of extreme interest because in the retina the tumour had advanced too far to permit me to determine its origin (Fig. 4).

If we may judge by its good effects on the child's general condition, the operation had not any direct relation to the fatal issue of the case; for we may fairly infer from the time at which the meningitis supervened (when the sloughs had separated and cicatrization was advanced) that it was not caused by an extension within the cranium of the inflammation set up by the application of the chloride of zinc to the orbital walls, a measure which experience has proved to be most valuable and much less dangerous than might have been expected on *a priori* grounds.

CASE II.—*A Case of Spindle-celled Sarcoma of the Pars Petrosa of the right temporal Bone, causing Anæsthesia of the right Eyeball and right half of the face, and Paralysis of their muscles, in the course of which Ophthalmia and Ulceration of the Cornea of this Eye, and Neuro-retinitis of the left Eye occurred.*

The chief pathological interest of this case consists in its bearing on the still mooted existence of a direct control by the fifth cranial nerve over the nutrition of the eyeball, and in the association of inflammation of the optic nerve with an intraocular tumour. The speedy cicatrization of the ulcer (of more than two months' duration) when the insensible eye was protected by a compress from cold and from the intrusion of foreign bodies, and the subsidence of the ophthalmia twice on the removal of a foreign body detected within the eyelids, without any other treatment, favour the opinion that the ulceration and ophthalmia were excited and maintained by causes acting on the eye from without, and that they did not directly arise out of the anæsthesia.

The neuritis, diagnosed in the left eye with the ophthalmoscope, no doubt had its origin in the disturbance of the venous circulation caused by the advance of the tumour from the right middle fossa of the skull through the sphenoidal cells into the left cavernous sinus. The relations of the principal mass of the tumour make it very probable that the blindness of the right eye, at an early stage, also resulted from neuritis produced in a similar manner.

November 4, 1863. A brunette, æt. 59, was sent to me by Dr. Tanner, with ulceration of the right cornea, which had begun in the preceding August.

The centre of the cornea was perforated by a large ulcer, through which a button of iris coated with lymph protruded, and the periphery was cloudy and vascular. The conjunctiva was inflamed, and it and the cornea were insensible. The upper,

lower, and internal recti muscles, the levator and orbicularis palpebrarum were all incompletely paralysed. The right temporal fossa and the right cheek were hollow; and when she clenched her teeth no contraction of the temporal and masseteric muscles was felt. The muscles of expression on the right side of the face were palsied and contracted, the mouth being drawn towards the right; and the buccinator alone, on this side, retained slight contractility.

The sensitiveness of the right side of the face and of the corresponding front half of the scalp was much diminished, the anæsthesia ceasing abruptly at the middle line, while she felt an intolerable plunging, burning pain in the anæsthetic parts.

History. Married, without family, catamenia ceased at 55; until then her health had always been good, but about a year after neuralgia began in the right side of her head and face, and the visual acuity of the right eye progressively decreased till quantitative perception of light was lost, and this without any externally apparent ophthalmia. I could not ascertain the order in which the anæsthesia and the motor paralyses followed.

The treatment which had been employed during the first three years consisted in mercurials and leeching. Her friends then placed her under Dr. Tanner, who prescribed tonics and opiates, with the effect of lessening the pain and diminishing her emaciation.

At the time I first saw her the palsy of so many nerves, five, the 2nd, 3rd, 4th, 5th in its three divisions, and the portio dura of the 7th, easily fixed the situation of the disease in the middle fossa of the skull, where all these nerves gather together just before they escape from the cranium through their respective foramina. As regarded the nature of the disease, I was disposed to suspect a fibroma of the dura mater lining the middle fossa of the base of the skull, or of the petrous part of the temporal bone, because there was not any evidence of syphilis, rheumatism, or gout, which might have pointed to a circumscribed meningitis, or osteitis, because her age, 59, made tubercle and glioma improbable (I have seen cerebral gliomata only in the young), and because the duration of her illness and the absence of enlarged glands in the neck excluded cancer.

Having in my mind Snellen's experiments on rabbits, in which section of the 5th nerve within the skull was not followed

by corneal inflammation, though the eye was completely anaesthetic, when the intrusion of foreign bodies was rigidly prevented, and the eye shielded from inadvertent blows by sewing the sensitive ear across it to the nose,* I treated my patient by closing the eyelids with a strip of sticking-plaster, and covering the eye with a light cotton wool compress. These simple measures at once prevented the entrance of dust, and protected the inflamed organ against sudden exposure to changes of temperature.

At her next visit, four days afterwards, there was already a manifest improvement; the hernia iridis was less prominent, and the conjunctival inflammation had diminished. The same treatment was continued, and by the end of the month the corneal ulcer had completely cicatrized, and the ophthalmia had entirely disappeared.

She continued to wear the compress, finding it comfortable, and the eye remained free from inflammation till February 3, 1864, when I observed a slight ophthalmia, and detected some threads of cotton-wool beneath the eyelid, of the presence of which she was not conscious. I removed these, and the ophthalmia soon subsided. On the 13th of April she had another attack of ophthalmia, the inflammation was limited to a portion of conjunctiva that was fretted by some eyelashes which she had turned inwards against the eye by applying the strap of plaster clumsily, and it ceased when the misdirected lashes were replaced in their proper position.

In September, during my absence, she complained that the sight of her left eye was failing, and in the following November I found V. = No. 18 J. There were well marked signs of neuritis. The right ear was now quite deaf. She walked unsteadily, owing to imperfectly coordinated muscular action in both legs, and from the same cause the voluntary movements of the arms were irregular. I did not again see her alive, but learned that after convulsions, which recurred frequently during several days, she died December 12th.

Dr. Tanner courteously afforded me an opportunity of making a *post-mortem* examination, which the relations restricted to the head.

* Snellen. De Invloed der Zenuwen of de Ortsteking proefondervindelijk getoetst. Utrecht, 1857.

We found a sub-globular tumour, measuring two inches by one inch and a half in its antero-posterior and transverse diameters, projecting from the right petrosal bone into the cavity of the cranium. The tentorium cerebelli imperfectly divided it into an upper and larger lobe, which lay in the middle fossa, on the upper surface of the pars petrosa and the conterminous part of the greater wing of the sphenoid bone, and a lower and smaller lobe, which projected beneath the tentorium in the posterior fossa, and overhung the posterior surface of the pars petrosa. The distended and thinned dura mater clothed the free surface of the tumour.

The examination was unavoidably too hurried and imperfect to allow us to precisely determine all the deeper connections, but we ascertained that the tumour passed through the floor of the skull into the pharynx, and filled the sphenoidal sinuses.

The brain had a hollow in its base corresponding to the tumour. The ventricles and the sub-arachnoid spaces contained a few drachms of clear serum. Both the optic and the olfactory nerves were oedematous. The third, fourth, fifth, and sixth nerves on the right side were lost where they pierced the dura mater clothing the tumour, and the seventh nerve at the meatus audit. int. The intra-cranial portions of these nerves did not offer any differences recognizable by the unaided eye from those of the left side.

The intra-cranial portion of the internal carotid artery was compressed between the tumour and the right side of the body of the sphenoid bone, and that part of the vessel which corresponds to the canal in the pars petrosa traversed the middle of the tumour. The interior of this roughly resembled an aneurism; the centre consisted principally of friable red blood-clot, and the periphery had the consistence and grey colour of decolorized fibrine. Owing to the great quantity of extravasated blood, the proper structure was hardly recognizable in the centre, but it increased in distinctness towards the periphery. It consisted of a fibrillated intercellular tissue, in which were embedded small oblong, circular, roundly-oval, and spindle-shaped cells, the cellular being in excess of the intercellular constituent (Fig. 5). In some parts the cells were grouped in parallel rows. In other parts no definite type of arrangement was observable. In removing the tumour, the carotid artery was injured, and the

source of the extravasated blood could not be demonstrated, but the large quantity and chief abundance of it around this main vessel, favour the idea that it escaped from an opening in it.

CASE III.—*A Case of Fungating Infecting Melanotic Sarcoma, originating in a withered Eyeball, filling the Orbit and protruding between the distended Eyelids, successfully extirpated with the aid of the actual Cautery and Chloride of Zinc Paste.*

The plan of operation practised in Case I. (page 171) was most successful in the following, which I publish chiefly with the object of drawing attention to it. Without experience we might conceive that the use of the cautery and caustics in the orbit would be fraught with extreme danger, owing to the thinness of the roof of this cavity and the nearness of the brain. The fact that the destructive action of the hot iron is comparatively superficial has, however, been long recognized by surgeons who formerly were in the habit of using it to hasten the exfoliation of sequestra; and during the last few years we have had frequent lessons in our cancer wards that the chloride of zinc is a very manageable caustic, the immediate effects of which can be regulated with some certainty, while it excites little inflammation in the living tissues beyond the slough, and little constitutional disturbance.

The formula commonly used in the Middlesex Hospital contains one part by weight of chloride of zinc rubbed up with four parts of flour, to which sufficient tinctura opii is added to make a paste of the consistence of honey. It is applied upon lint.

A gentleman, æt. 68, consulted me in August, 1865, in consequence of repeated bleeding from a fungating tumour of the right eyeball. A large tuberos mass filled the orbit, concealing the eyeball, distending the eyelids, and protruding between them. Its summit was covered with a crust of dried ichor and blood. The eyelids were overrun with large varicose veins, and

so thinned by extension that the black colour of the tumour was seen through them. No disease of the lymphatic glands, or of the abdominal or thoracic viscera, was discoverable, but the patient was blanched by the repeated loss of blood.

He said that until lately he had been remarkably well and active for his age. Eight or ten years previously the sight of his left eye had failed; he was told it was amaurosis. About two or three years after this the eye on several occasions was red and painful, and then it slowly shrank. At the end of two years more he began to wear an artificial eye. The maker of this remarked to him that the stump was very congested, and soon after it began to enlarge. At this time he consulted an eminent ophthalmic surgeon, who informed him that the disease was cancer, and expressed a very positive opinion against extirpation, which he repeated on a subsequent occasion, when the enlargement had become very considerable, and overruled the advice of a junior consultant to remove the tumour without delay. Believing his case beyond help, the sufferer sought no further advice until often-recurring hemorrhages threatened to end his existence.

Desperate as his case was at this time, I thought he would at least gain a respite by the removal of the tumour, and I determined to adopt a plan which, shortly before, had been very successfully practised in a similar case at the same stage by my colleague, Mr. D. Morgan, consisting in the thorough removal, with the knife, of all the soft tissues from the orbit, followed by cauterization with the hot iron, and the application of chloride of zinc paste to the bony sides.

I urged the operation the more strongly because the absence of symptoms denoting the extension of the tumour within the cranium was a ground for hoping that a thorough eradication might be practicable; but the reiterated positive opinion of a surgeon much older than myself, had so impressed the patient with the idea that his malady was beyond the resources of surgery, and the risk of immediately fatal hemorrhage had been so vividly portrayed to him by his family practitioner, that at first he seemed unable to believe that an operation could help him.

However, convinced that if left to himself he must soon die, and encouraged by the assurance that immediately fatal hemor-

rhage was very improbable, he acquiesced. His circumstances did not allow him proper attention at home, I took him into the Middlesex Hospital, and, on the 22nd, extirpated the tumour in the manner I had proposed. It was so friable that it could only be clipped away piecemeal with scissors. I then detached all the soft tissues from the orbital walls, scraped them, seared the cut end of the optic nerve and every suspicious spot with a hot iron, and plastered the whole raw surface with lint smeared with chloride of zinc paste.

The bleeding was less than might have been expected; one vessel at the apex of the orbit required a ligature. The report of the next few days will show how slight the reaction was.

23rd.—Slept at intervals during the night. P. 72.

24th.—Slept continuously after three o'clock (before this was disturbed by a delirious patient). Skin hot. Eyelids swollen. P. 80.

25th. P. 72. Skin cool. Complains of feebleness.

From this time I was absent until October 1st, when I found him convalescent, and learned that his recovery had been uninterrupted. Some small scales had exfoliated from the inner wall and roof of the orbit, and others continued to exfoliate for several weeks, leaving ultimately a free opening into the nasal passages. In the progress of cicatrization the eyelids were drawn in until they lined much of the front of the orbit.

The patient, whom I see every two or three weeks is now active and vigorous; he has resumed his occupation—the law. There is no appearance of any recurrence of the morbid growth in the scar; the deformity is hidden by a small green silk patch; and he has enjoyed for several months an amount of comfort and mental ease, for which he expresses the most lively gratitude.

The tumour consisted mainly of large spindle cells, and circular and roundly-oval cells filled with pigment, closely packed in a scanty, finely-granulated intercellular substance (Fig. 6). According to Virchow's anatomical definition it was, therefore, melanotic sarcoma. It appeared to have begun in the choroid which in parts was infiltrated with similar cells, and in parts wasted; then to have rapidly infected the sclerotic which was also infiltrated; and at an early stage to have escaped from the shrunken eyeball and enveloped it within its increasing mass.

The optic nerve immediately outside the sclera was shrunken; behind this point it was not traceable.

EXPLANATION OF PLATE.

FIG. 1.—A section of the centre of the glioma of the right eyeball, $\times 240$. Small round and roundly-oval cells are seen embedded in scanty matrix, which has been rendered finely granular by chromic acid, but was transparent when fresh. The fibres probably belong to Müller's vertically-radial connective tissue fibre-system.

FIG. 2.—A longitudinal section of the right optic nerve inside the skull, near the commissure, $\times 240$. It shows the presence of cells resembling those of the intraocular glioma, and the disappearance of the nerve-fibres.

FIG. 3.—A horizontal section of the left eyeball, displaying an axial glioma of the retina, which was separated from the choroid by a space filled with serum. The cut surface of the tumours is mottled with small fatty specks.

FIG. 4.—A transverse section of the swollen intracranial part of the left optic nerve, $\times 240$. *a*. The bundles of nerve-fibres; *b*. the gliomatous growth originating in the interstitial connective tissue (neuroglia).

The above four figures illustrate case No. 1.

FIG. 5.—Exhibits the minute structure of the spindle-celled sarcoma of the temporal bone, described in case 2, $\times 240$.

FIG. 6.—A section of the infecting, melanotic sarcoma described in case 3, $\times 240$.

Fig 5

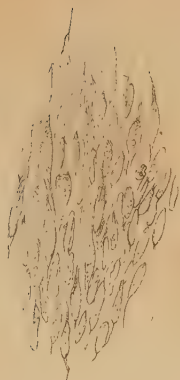


Fig 6

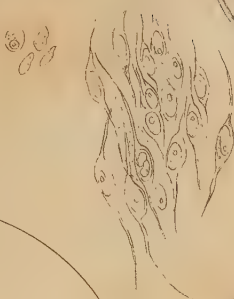


Fig 3



Fig 2

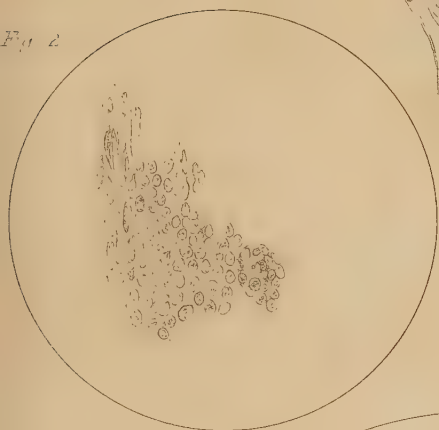


Fig 1

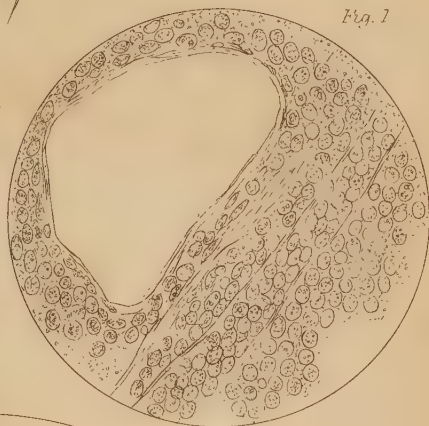
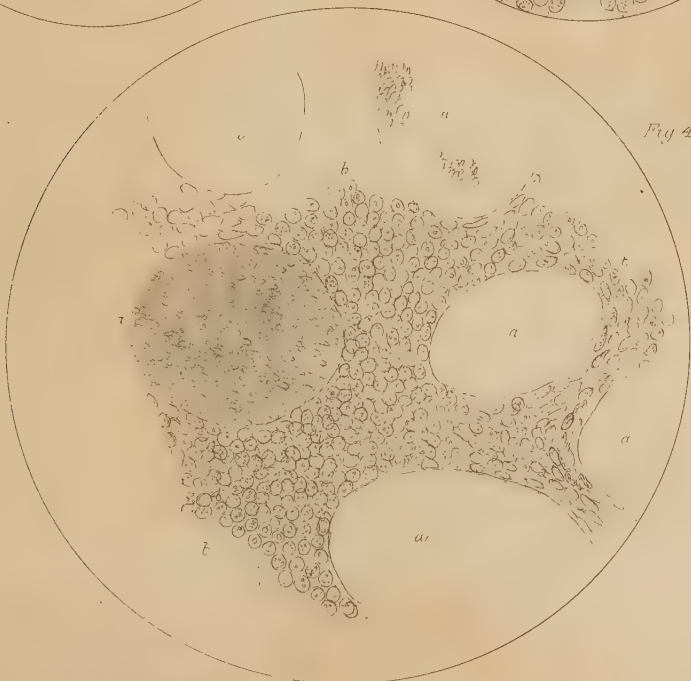


Fig 4



TWO CASES OF UNIOcular AMAUROSIS.

By JONATHAN HUTCHINSON, F.R.C.S.

THE following cases,—examples of that rare and very interesting event, complete and permanent blindness of one eye only, with white atrophy of the disc,—are published by way of appendix to my report on this subject in a former number of this journal.*

By the careful clinical study of these cases, and of their points of resemblance to and difference from the far more common class in which symmetrical changes resulting in white atrophy and blindness take place, we may, perhaps, hope to throw some light on the true pathology of the latter. They are also of much importance in themselves in reference to the theory of embolism as a cause of certain forms of paralysis.

CASE VI.—*Sudden Blindness of one Eye (permanent)—Ophthalmoscopic examination, seven months afterwards:—White Atrophy of Optic Disc and extreme shrinking of the Arteria Centralis—Qy. a case of Embolism.*

Alfred Bayley, æt. 18, was admitted as an out-patient at the Ophthalmic Hospital, Moorfields, March 19, 1866. He was a tall thin young man, looking pale but considering himself in good health. In 1861 he had a severe attack of “rheumatic fever.” He was in bed for several months. The chief symptom appears to have been severe pain in his back, and it seems doubtful whether this was really rheumatism. He says that for nearly three weeks his knees were drawn up and his head bent forwards. He does not seem to have had any attack of paralysis either then or since. His heart’s action is rather tumultuous and is easily increased on slight exertion, but not the slightest bruit

* See vol. iv, page 235, “Report on Cases of Amaurosis from Intracranial causes in which one Eye only was affected,” Cases I to V.

can be detected. Last August, one afternoon, he was sorting some samples, when the left eye became suddenly dark. At first he thought that the eye was quite blind, but on trial he found that he could see a little with it. He went immediately to a surgeon. He was then in good health. He went to his occupation as usual the next day and had no fresh symptoms. From that time to the present he has remained in the same condition, but he thinks that latterly his eye has perhaps improved. He can see just sufficiently to count fingers. He says that several times his sight with the other eye (right) has become indistinct for a short time. On one occasion for about a minute he was in almost total darkness. This occurred last October. The blindness passed off as suddenly as it had been begun.

Ophthalmoscopic Appearances.—Left eye. The disc is very pale but not absolutely white, its margins are abrupt and marked with black pigment. The trunks of the vena centralis are easily seen, though not more than half their natural size. The trunks of the artery are so small that they can with difficulty be discovered. To the upper half of the retina (inverted image), I cannot trace any artery whatever. On the lower half of the retina some small arterial branches are indistinctly seen, but they cannot be traced much beyond the margins of the disc. Practically one might say that the main trunks of the artery can nowhere be traced. The choroid is normal. The optic disc is not materially depressed and it appears a little hazy.

In the right eye the conditions are normal excepting, perhaps, that the vein is too turgid.

CASE VII.—*Sudden Blindness of one Eye (permanent).—Ophthalmoscopic Examination nine years afterwards.—White Atrophy of Disc.*

Sarah Benevelt, æt. 20, was admitted under my care, at the Hospital for Skin Diseases, on March 15, 1866. She was suffering from lupus, but by accident I discovered that she was quite blind of one eye. The following are the facts as regards the unsymmetrical amaurosis :—

Nine years ago, on getting up one morning she found she could not see on one side.

She was then in fair general health, but she believes that

it was at the time when she suffered from chorea. She says that she was ill for six months with the latter, but not severely.

She has never had rheumatism, has never been paralysed, nor had any sort of fit.

She has had lupus on the face for twelve years past.

She speaks very definitely as to her discovery that she could not see on one side; and it appears probable that the failure of sight was quite sudden.

She has no cardiac murmur, and is at present in fair health.

The left eye is perfect, its disc is of healthy redness. The right disc is of a creamy white, very conspicuous, its margins everywhere quite abrupt, excepting on the side next the yellow spot, where the choroid is a little notched. The trunks of the vessels are beautifully clear and distinct on the disc and at other parts.

Both artery and vein are diminished to less than half their normal size. The artery bears its normal relative size to the vein.

The size of the artery in this case seems to put out of question the hypothesis of embolism which the history of the sudden occurrence of the blindness might have suggested. In this feature the case differs from the preceding one. Possibly, however, some vessel, other than the arteria centralis, was plugged by an embolus. The girl had suffered from chorea, and I believe that my friend, Dr. Hughlings Jackson, holds a strong opinion that embolism is often the cause of that curious affection.

CASE OF CANCER OF THE EYEBALL COMMENCING IN THE
CILIARY REGION, AND PRESENTING ITSELF THROUGH
THE IRIS.

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*Clinical Assistant at the Royal London Ophthalmic Hospital, Surgeon
to the St. George's and St. James' Dispensary.*

Wm. L., of healthy appearance, a joiner by trade, æt. 24, presented himself at the hospital on August 9 last. The sight of his left eye had been gradually failing for, as nearly as he could remember, six or seven months. The first defect that he had noticed was that the sight of that eye had become "foggy."

On examination it was found that with the affected eye he could with difficulty count fingers, and that by slightly rotating the head to one side, so as to use the inner peripheral portion of the retina. The globe appeared generally bright and healthy. In the plane of the iris, and presenting through it, was a cyst-like growth, of a *yellowish-grey* colour, irregularly oval in shape, and about 3''' by 1½''' in diameter. Its position was outwards, and somewhat downwards, and extended from the ciliary border to within less than a line of the pupillary margin. The rest of the iris was healthy, and acted well, together with the free portion to the pupil side of the growth. The pupil was quite round. The margin of the growth was perfectly defined, giving it the cyst-like appearance mentioned above. The anterior chamber was not diminished in the slightest degree. The patient had first perceived a "spot" in the iris four months ago. There was no pain nor irritation whatever, and none had been present throughout. There was no history of injury and no history of malignant disease in any member of his family. In the conjunctiva there was one large and tortuous vein, commencing about a line from the margin of the cornea, opposite the growth, and going in a direction directly backwards.

After the instillation of atropine, the pupil became freely dilated, but was no longer round, being encroached upon by the growth, which could now be seen extending backwards behind the iris. Examination with the ophthalmoscope showed the tumour to be of a rounded form projecting somewhat into the

axis of vision, so that the yellow spot could not be seen, and barely the disc of the optic nerve. The lens, though transparent, was pushed inwards and indented, and the growth with a pigimentary covering could be seen firmly pressing against it.

As the tumour was undoubtedly of a malignant nature, and slowly increasing, and the eye as an organ of vision useless, it was recommended that a radical cure was only possible by extirpation without loss of time. This was agreed to, and accordingly, after obtaining a sketch of the appearance presented, I, on August 16, removed the globe, and a fortnight later the patient was fitted with an artificial eye.

Dissection of the Globe.—On making a section of the eyeball, which was done in such a way as to bisect the tumour, as well as the cornea, a grey, translucent medullary growth, about the size of a small hazel nut, was found *firmly* attached by a narrow pedicle to the sclerotic, close to its junction with the cornea. The choroid and retina were in apposition, and had a distinct and healthy appearance, being apparently unimplicated by the disease, beyond being detached from the sclerotic. The outer surface of the growth, from the pedicle to a distance of $2\frac{1}{2}'''$, was closely pressed against the sclerotic, but not adherent to it; and beyond this point the choroid and retina were reflected, at right angles to the sclerotic, over the surface of the tumour, which pressed the ciliary processes firmly against the lens, and pushed it inwards into the position seen through the dilated pupil before the operation. There was no deposit of any kind in the other textures of the globe.

The section of the tumour showed several cysts of various sizes, filled with a translucent substance, but the outer part of the growth near its attachment was much more dense. There was one small streak of pigment near the centre of the mass. Mr. Hutchinson kindly gave me the result of his examination of a section under the microscope. The cells were numerous, and of various sizes, with contained and free nuclei. Most of them were round or oval. The nuclei were usually very large.

Remarks.—The position of the growth in this case was an unusual one. It was undoubtedly most strongly connected with the sclerotic, just at the thickened portion where it joins the cornea, by a narrow pedicle less than a

line in diameter. Whether it originated or not in the sclerotic, or in some other structure of the ciliary region, it is impossible to say. It certainly did not commence in the ciliary processes, as they, though displaced, were free from disease, besides in that case its development would probably have been of a more pigmentary character, and would have taken place within the choroid instead of between it and the sclerotic, and there would have been more disturbance and irritation in the eye, as in a case reported by Mr. Hulke.* Primary intraocular cancer of the eyeball is almost always within the choroid, sometimes probably within the retina also. Amongst the valuable collection of eye preparations, presented by Dr. Bader to the Museum of the Royal College of Surgeons, there are 17 cases of cancer of the eye represented. In all of them, where the tunics of the eye were not obliterated, and it was possible to determine the primary seat of the disease, the tumour was situated within the choroid, and the retina was more or less detached, and in all but *one* of these cases the fundus of the eye was the original seat. It is both rare to find this disease, commencing in the neighbourhood of the ciliary region, and rare to find it commencing from the inner surface of the sclerotic. Amongst the older preparations in the College Museum, there are two of medullary tumours, springing from the interior of the sclerotic, and pushing forwards the choroid and retina, but both originated in the posterior hemisphere of the globe. Amongst the 11 cases of cancer of the globe, reported by Mr. Hulke, in the Ophthalmic Hospital Reports, vols. iii. and iv., in none was the tumour external to the choroid.

For the notes of another case almost precisely similar to this, the reader is referred to page 177.—EDS.

* Ophth. Hosp. Reports, Vol. iii., p. 284.

A CLINICAL REPORT ON HERPES ZOSTER FRONTALIS SEU OPTHALMICUS (SHINGLES AFFECTING THE FOREHEAD AND NOSE.)

By JONATHAN HUTCHINSON, F.R.C.S.

THIS most interesting disease has as yet received but little attention from writers on Skin Diseases, and as far as I am aware scarcely any from ophthalmic surgeons. Rayer has recorded a single case; in the "Atlas," published by Danielssen and Boeck there is an excellent portrait of it, and a wax cast having reference to it is in the Guy's Hospital collection. The disease is, I am persuaded, more frequent than is generally supposed. In proof of this I may mention that during this last year no fewer than three patients have consulted me in private on account of its effects. About three years ago a little boy was brought to my house shewing the disease in its acute and early stage.* At different hospitals, the London, Metropolitan Free, and Ophthalmic, a considerable number of examples of it have come under my care. These I now propose to group together, and in doing so I shall also mention all the cases which I have found recorded by others.†

I have found most surgeons very incredulous as to this disease, and free in assertions that they had never seen it, and that it must be extremely rare. My conviction is that it is often misnamed. It is often considered to be erysipelas. Three patients who came to me with the unmistakable marks of herpes on one side of the forehead had been treated for a disease which had been said to be erysipelas, and several others in my series had also had a

* A portrait of this boy was taken for me by Mr. E. Burgess, and was subsequently published by the New Sydenham Society, Portrait 8, Fasciculus III.

† In my search for other cases I have had time only to refer to the leading treatises. Very probably a considerable number might be found scattered through periodical literature.

similar diagnosis given. Yet it is easy enough to distinguish the one from the other, if attention be once drawn to their differences. Herpes frontalis is always limited to one side, never transgresses the median line of the forehead and nose. It never affects the cheek, although there may be some sympathetic oedema of this part (oedema of contiguity). There is less general swelling of the skin than in erysipelas, and in some cases very little. The vesicles of herpes are smaller, more defined, more numerous, and altogether much more conspicuous and pronounced than are the bullæ of erysipelas. There is much more pain and much less constitutional disturbance in herpes than in erysipelas. The strictly unilateral character of the one contrasted with the irregular location of the other, is, however, the most reliable feature for the purpose of ready diagnosis.

Herpes almost invariably leaves scars, often deep ones, and by the arrangement of these (unilateral) it is usually easy to recognise a patient who has suffered from the disease even years after its occurrence.

For purposes both of prognosis and treatment, it is very desirable to make a correct diagnosis between herpes frontalis and erysipelas of the scalp. A patient with the former may be confidently assured that there is no danger; that the disease will subside after a time, and that he will have neither a relapse nor a recurrence. Two ladies who came to me scarred by herpes, believed that they had had erysipelas, and would be very likely to have it again, and were greatly relieved when told that they might go into the air as usual, and were quite certain never to have another similar attack. On the other hand it is well to warn a patient with herpes that very likely the eye may inflame, and that, if it does, serious mischief to the organ may result.

The case of James Morgan (page 196) is, I believe, the first in which inflammation of the deeper structures of the eye (iris, &c.) has been observed. This patient was under my care in 1861. Since then I have seen several cases in which

the cornea, sclerotic and iris became involved in inflammation. As a rule, I think the eye does not inflame until the eruption is at its height, or already beginning to decline. In one case, however, a single nodule of lymph near to the pupillary edge showed itself in the early stage, and without any ulceration of the cornea. More usually the ulceration of the cornea is extensive, and often it prevents a satisfactory inspection of the state of the iris. There is always great congestion both of conjunctiva and sclerotic, and this congestion, as well as the corneal ulceration, is very slow in disappearance. The pupil, even when there is not much lymph visible, is always very sluggish, and in several cases I have found it impossible to make the iris act by atropine, even by strong solutions frequently repeated. I have never seen hypopyon in connection with this form of ophthalmia, nor does the other eye seem to suffer.

According to my experience herpes zoster frontalis is more frequent in the aged than in the young, and also more severe. The liability of the eye to suffer also appears to be much greater in the old.

When the disease has subsided, the eyeball is usually left somewhat anæsthetic, though perhaps at the same time liable to neuralgic irritability. In this it shares with the skin, which, although perhaps very painful, is always numb as regards common sensation. In the after stages the patients often complain that the skin feels "numb and stiff like parchment." I have often proved with the æsthesiometer that sensation was much less acute in the affected part than in the opposite forehead. This indeed might be expected from the disorganisation of the papillæ which the scars imply. I think, however, that it exceeds that which this result may be supposed to explain, and that it is not improbably dependent also in part upon some change in the nerve trunk or nerve centre.

Herpes zoster frontalis, like herpes zoster of the trunk, occurs but once in a patient's life, goes through regular

stages of advance and decline, is never symmetrical,* confines itself accurately to the parts of skin supplied by certain known nerves of sensation, and lastly, is not contagious. Thus in some features it resembles an exanthem, in others a neurosis. From both these, however, it differs in most marked features; indeed as yet these forms of herpes stand alone as an unique type of disease, perhaps at once the most interesting and the most puzzling in the whole domain of pathology.†

There can be little doubt that the local processes of inflammation in the skin and the eye are produced directly through the medium of the nerve, in this instance of the ophthalmic division of the fifth (some or all its branches). At what part of the nervous system the irritation begins, however, we are quite in the dark. I can see no arguments in favour of the belief that it is produced by the vaso-motor rather than by the sensory trunks. It appears always to follow accurately the distribution of the latter. Not only is it a constant fact that but one division of the fifth nerve is involved, but it is a very common one to find only some twigs of the ophthalmic division affected. Thus very frequently the trochlear and nasal branches escape. I have never seen the converse, *i.e.*, the nasal and trochlear affected, whilst the frontal escaped. There must be some reason for this, and also for the curious fact that the second division of the fifth scarcely ever produces herpes, if we except the herpes labialis, which comes into a different category. We scarcely ever see the lower eyelid and the cheek affected by herpes.

* I am aware that in exceedingly rare instances herpes zoster of the trunk does occur symmetrically, and in others, equally rare, twice in the life of the same patient. These exceptions are however so exceptional that they only serve to give the general rule greater prominence. I have, as yet, never known herpes zoster frontalis either to be symmetrical or to occur twice to the same patient.

† For a more full explanation of the nosological riddle which herpes zoster presents see a lecture by the writer in the third volume of the London Hospital Reports.

This singling out of one particular nerve-branch might seem to imply that the irritation, whatever it is, attacks the nerve-trunks after their subdivision. It is possible that it may be brought to bear upon them through the medium of the vaso-motor ganglia. This conjecture is very different from the one which would attribute the whole production and localisation of the disease to vaso-motor filaments. Other arguments might be held to support the conjecture that the irritation starts from the cerebral ganglia of origin for the nerve concerned.

As regards treatment, whilst our pathology is so uncertain, we can allege nothing with confidence. I have always been in the habit of ordering quinine, and using any simple local application which may seem most appropriate to the stage of the eruption. Lead lotion at first, or free applications of oil, or if the pain be very severe, of laudanum, are all useful. In a recent case Mr. Bowman has, I believe, performed subcutaneous section of the supra-orbital branch, and with some relief to the pain. Very probably section of this nerve would relieve the pain felt in the skin of the forehead, and the decision as to whether or not it can do this would clear up one little point as to its nature, for it is possible that after all the pain felt is produced by central changes, and is as regards the peripheral parts only "a referred pain."

An attack of ophthalmic shingles often constitutes a very serious illness. It entails much severe pain, and although the vesicles will disappear in ten days or so, yet the pain may last much longer, especially if the eye be affected, or if the skin be deeply ulcerated. In a severe case the patient may be confined to bed for a week or a fortnight, and the irritability of the eye may last for months.

CASE I.—*Herpes Zoster Frontalis of the left side, involving the whole ophthalmic division of fifth nerve.—Inflammation of the left Eye. —Ulcers in Cornea and Iritis.*

George M., æt. 63, a stout, florid man, applied at the Ophthalmic Hospital in September, 1861, on account of slight conjunctivitis of three days' duration. He was prescribed for on a Thursday. During the Thursday night he scarcely slept at all on account of severe pain in the scalp. On the Friday, at noon, the left half of the scalp was "all over pimples."

He attended at the hospital again on the following Monday, September 3rd, and then showed a characteristic rash of herpes zoster. The patches were almost confluent. They covered the whole upper lid, and passed outwards and downwards into the upper part of his whisker, and inwards and downwards over the whole left half of the nose to its tip. On the scalp the eruption involved the whole left half as far back as a line drawn from the back of ears over the vertex. On the nose and the scalp it was limited most exactly by the median line. The lower eyelid was œdematous, but free from vesicles. The cheek was not affected, nor the ear, nor the parotid or the post-aural regions.

He was a stout, healthy man, and said he had never had any illness whatever. Tongue clean; appetite bad.

The eruption was very characteristic, but of those who saw it, one gentleman called it eczema, and another erysipelas. From the latter it was easily distinguished by its vesicles being in groups with healthy portions of skin intervening; from the former, by the size, confluence, &c., of its vesicles, and by the bloody crusts left by those which had burst.

There were no ulcers or patches on the conjunctiva, but that membrane was swollen and œdematous.

On September 6th the inflammation of the eye had increased, and there was a deep ulcer near the margin of the cornea.

After this date the rash quickly declined, but the forehead was for long ulcerated and painful, and his eye very irritable. The following note describes his condition two months later:—

November 14th.—His left nostril has been throughout a little sore. There are extensive red scars of the eruption on the scalp. His eyelids (left) are still relaxed, and the conjunctiva much congested. The motions of the globe are perfect. He com-

plains much of pain in the affected region of the scalp ; but the pain sometimes quite leaves him. He sleeps well on the whole. The globe is slightly prominent. The cornea is superficially opaque in patches. The pupil is irregular, and a thin layer of lymph occupies it.

He complains that his left side of head feels tight, as if bound or pressed, though partially numb. Mr. Dixon and I examined him carefully, and it was quite certain that over the whole distribution of the ophthalmic division, he had very much less perfect sensation than on the other side. The right side was normally sensitive ; but on the left he often stated that he did not feel the prick of a pin at all.

He has had a severe crop of boils over the brow, and the irritation, both of skin and eye, has subsided only very slowly.

The inflammation of the eye seems to have involved, in some degree, most of the tissues of the globe, cornea, conjunctiva, sclerotic, and iris.

CASE II.—*Herpes Zoster on the left Forehead and mid-region of left side of Nose—Anæmia—Eye not inflamed.*

Mrs. Kimpton, æt. 26, a tall, thin, very delicate-looking woman, applied to me on Dec. 17th, 1861, on account of a rash on her forehead. On the left side of her forehead, extending upwards amongst the roots of the hair nearly to the middle of the head, were characteristic patches of herpes. The vesicles were very small, and as usual collected in oval groups. The lowest group was situated exactly over the supra-orbital foramen. There were none on the temple or the upper lid. The mid-region of the left side of the nose was covered with vesicles, extending exactly to the median line and no further. Neither the lower part (ala) nor the upper part of the side of the nose were affected. The upper margin of the patch was exactly on the level with the angle of the eye. The eye itself was nowise affected. Pupils of equal size, and sight good.

She was exceedingly pale, and whilst I was questioning her she almost fainted. She considered that she had enjoyed usual health until a fortnight ago, when she began to suffer much from headache. The headache was all over, not limited. She slept very badly, chiefly on account of headache, and lost her ap-

petite. She also had soreness of the scalp, and the hair came out. (She still has a good head of hair.) Her menstruation had always been regular. Her youngest child was one year old, and was weaned five months ago. The bowels were now costive. She had not had any sickness, but for the last few days had been very giddy, so much so that she was often afraid she should fall down stairs.

Six days before her admission the vesicles began to show themselves amongst the hair. There had been some local tenderness before, but not much. No tenderness or neuralgia was noticed on the side of the nose before the eruption. The eruption on the nose began three days after that on the scalp. Tongue clean; papillæ not unduly developed.

This patient recovered from the attack without any inflammation of the eye.

CASE III.—Herpes Zoster affecting the parts supplied by the Frontal and Supra-trochlear branches of the first division of the left fifth Nerve—Eye not inflamed.

The subject of the following case was brought to me on March 29, 1862. His eruption was so characteristic that I had a coloured portrait taken. This was subsequently adopted by the Council of the New Sydenham Society for their Atlas, and has been faithfully copied by Mr. Burgess in plate number VIII., which well displays the features of this peculiar disease.

William Woolgar, æt. $3\frac{1}{2}$, previously in good health, a stout but pale child, living in the City. He was, as his mother states, liable to occasional headaches. On Wednesday of last week he first began to feel ill, and complained of headache, and put his hand to the right side. He had several restless nights, cried out in his sleep, and his appetite left him. No redness of the skin was noticed until Thursday morning. On Friday morning he was sick and vomited; he had not been so before.

The first vesicles were observed a little above the eyebrow, and almost over the trunk of the frontal nerve.

He was brought to me on Saturday. The whole right forehead, right upper eyelid, and right anterior half of scalp were involved. A few vesicles extended down the right side of nose. The upper eyelid was considerably swollen, the lower scarcely

at all. All the affected tract of skin was of a bright pink colour from congestion, and covered by vesicles more or less grouped. The conjunctiva was suffused and congested, but there was no material intolerance of light, nor was the pupil altered in size. The skin was tender to the touch.

The boy looked pale, but his tongue was clean. He had seemed better since the rash came out.

The rash remained out for about a week, gradually receding. No fresh vesicles appeared after the first few days. It was three weeks before all the ulcers had healed. Beyond the general irritability and conjunctival congestion, there was no inflammation of the eye.

CASE IV.—*Shingles occurring on the Right Side of Chest and Left Forehead at the same time, and in the same patient.*

Joseph Bond, aged 56, the subject of severe chronic bronchitis and asthma. I had operated on him for the radical cure of hernia about two months before, after which he had considerable constitutional disturbance. This, however, had wholly subsided, and he was now in usual health.

On July 17th he came to me with a commencing half-zone of shingles on the *right* chest, extending from the spinous processes behind to the middle of the sternum, and taking the course of the fourth dorsal nerve. Great pain had preceded the appearance of the eruption. On the following day a similar eruption showed itself on the *left* forehead. It covered the left upper eyelid and the eyebrow, and extended backwards over the anterior two-thirds of the scalp. The conjunctiva was congested, and the eye irritable. Both on the chest and the scalp the characters of the rash were subsequently developed in full perfection.

I have no note of his progress later than the seventh day, when the rash was fading. There were no vesicles on the nose and no inflammation of the eye.

CASE V.—*Herpes Zoster of the Frontal and Trochlear branches of the Ophthalmic Division of the Fifth Nerve.*

This patient was under my care at the Ophthalmic Hospital. A stout leucophlegmatic man, a great smoker, a clerk in a City office.

For ten days he had suffered from darting pain just above his left eye, and over the mastoid process on left side. The pain over the eye was such that he several times said to his employer he "could not tell what was coming to his eye, he had so much pain." No one could see anything. There was neither swelling nor redness.

Last Sunday he walked about thirty miles (this was about nine days after the frontal pain had begun). On Sunday night he noticed that there was swelling about the eyelid. Slept badly, and in the morning, Monday, found some vesicles over his eyebrow. The first seen were on the upper eyelid and eyebrow; afterwards on the side of nose as low as its middle, and over the left half of scalp. The pain continued, and he had several very bad nights, but kept at work. It was not till Thursday that I saw him.

Before the rash came out he had a good appetite, but since Monday (day of outbreak) he has felt sick every day, and eaten very little, and has felt weak all over. Sometimes his sight fails for awhile. "The day before yesterday he had to catch hold of the counter, or he would have fallen." Bowels costive at first, but open by medicine.

The rash was very copious, and very characteristic. It covered the left upper lid and the left half of forehead, and anterior three-fourths of scalp. A few spots occurred on the left side of the bridge of the nose. None on the lower lid, or cheek, or temple. There was much inflammatory cedema, the greatest swelling being of the forehead and upper eyelid, but the temple, lower eye-lid, and cheek being also involved. The eye was closed by the swelling of the lids. On opening the eye the conjunctiva was seen to be much swollen and chemosed, but the eye itself was not inflamed: cornea and iris brilliantly clear. The inflammation was very unusually severe, and the man before coming to the hospital had been told that the disease was erysipelas. Not a single spot crossed the median line to the right side. Many of the vesicles contained bloody serum.

I prescribed an emetic, to be followed by quinine. Lead lotion to be applied to the part.

On Monday the disease had very much abated, and he could open his eye.

I have unfortunately no further note as to the progress.

In this case the unusual duration of premonitory pain in the part, and its severity, are worthy of note, as is also the fact that he had much aching pain about the mastoid process of the affected side.

CASE VI.—*Herpes Frontalis of Right Side—No Vesicles on Nose, and no Inflammation of Eye.*

Mrs. Barnes, æt. 64, a pale, thin woman, but considering herself in good health, admitted July 9th, 1863, when the following notes were taken:—

“She has been liable to pain in the back of the left side of head. Last Sunday she had severe pain in the right side of head. It does not appear that this pain was at all confined to the frontal region. She locates it rather in the occiput and neck. On Monday she had soreness in the forehead, and thought it was swollen. On Tuesday the rash showed itself.

“She now has characteristic herpes over the right frontal region. Vesicles are found amongst the hair far back on the scalp. All are confined to the right side. The largest groups are in the eyebrow. The lid is swollen. No vesicles on the side of nose, but a portion of œdematous skin extends down the side of the bridge of nose close to inner canthus. The groups are not very thickly set, and the swelling is not much.

“Sensation does not appear to differ on the two sides.”

This patient recovered well, the eruption having passed through its usual stages. She had no inflammation of the eye.

CASE VII.—*Shingles on the Forehead and Nose, with Inflammation of Conjunctiva. (Imperfect Notes.)*

John Thomas, aged 17, a sailor, of dark complexion, and in good health, applied at Moorfields on April 28, 1865. On one side his forehead and side of nose were covered by the vesicles of herpes. There was great œdema, and the lids were closed by it; but there was not a single vesicle on the lower lid. The conjunctiva was much inflamed, and there was much mucous discharge.

He said that his attack had begun a week ago by severe pain about the eyebrow and discharge from the eye, and that the

rash did not show itself till three days later. He had been very giddy during the last day or two, and whilst I was questioning him he was so giddy that he could scarcely reply, and at length fainted.

Unfortunately I have no further note as to this case, and cannot state the exact condition of the eye.

CASE VIII.—*Shingles of Forehead and Nose, with Inflammation of Cornea and Iris.*

John Anderson, aged 69, a tailor, in excellent health, applied at Moorfields on May 10th, 1866. His left forehead and upper eyelid and left side of nose, to the very tip, were covered with herpes vesicles. There were none on the lower eyelid. The eruption was very free, and there was much œdema. On the scalp the eruption extended as far as the vertex, nowhere, however, transgressing the middle line. He said that his symptoms had commenced a week ago by severe pain in the middle of his forehead and down to the tip of his nose. This pain he described as continuous and “numbing.” In the course of the same day he had a shivering fit. The next day he observed a few pimples on the forehead, and at night these pimples had become small blisters. A day or two later he had another rigor. When admitted on May 10, although his conjunctiva was much congested, his cornea was quite clear. On the 14th I again noted that the cornea was not involved. On the 21st, however, there was superficial ulceration over almost the whole surface of the cornea, the ulceration being deepest at the lowest part. The conjunctiva was much thickened, and in a state of chemosis, and there was free muco-purulent discharge. The eruption was now disappearing, but he had still much pain. At this time he was very ill, owing to the pain and loss of rest which he had endured.

On the 24th the inflammation of the eye was less. Owing to the state of the cornea we had been unable to see the iris accurately, but it was evident that there was some lymph near its pupillary edge. From the 14th atropine had been used, and scarcely any dilatation had been produced. On several occasions a four-grain solution had been freely put in every quarter of an hour for four times, but without effect.

After the end of May the condition of things continued slowly to improve, but the eye long remained congested and irritable. At the present time, Oct. 15, the man bears the marks of the rash in deep pits over the forehead and side of nose; his eye is still very much congested, but without active disease. The cornea is superficially hazy, and the pupil, which is of medium degree of contraction, does not respond at all to the influence of atropine.

CASE IX.—*Shingles of Forehead and Nose, with Inflammation of Cornea and Iris—Long-continued Irritation.*

Miss B., a lady aged about 68, of Luton, consulted me in the summer of 1864 on account of an inflamed eye. She said she had “just recovered from an attack of erysipelas of the head during which she had suffered most severely.” As her left forehead and side of nose were covered with the scars of herpes, there could be no doubt as to what the nature of her illness had been. I assured her, to the great relief of her mind, that she was not likely to ever have that kind of “erysipelas” again. Her eye had been inflamed, and was still very irritable and much congested. The cornea was extensively but superficially opaque, and she had no useful vision. The globe was tender to the touch, and seemed a little harder than natural. The skin of the forehead was numb, and at the same time tender; she complained that it felt stiff, as if of parchment.

During the next year I repeatedly saw Miss B. Her eye recovered very slowly from its irritability, and the opacity of the cornea was such as to prevent all useful sight. The pupil was fixed and did not dilate with atropine, although there did not appear to be many adhesions. At present the tension, both of the affected eye and of its fellow, is decidedly increased.

CASE X.—*Shingles of Forehead and Nose, with Inflammation of Cornea and of Iris.*

Mrs. M., aged 66, a rather delicate lady, from a village in Hertford, came under my notice in almost precisely similar conditions to those of the preceding case. She had had what she was told was “erysipelas of the forehead,” and had been very ill. The

eye inflamed, and being very anxious about this she was brought up to town in a carriage as soon as she could safely leave her room. I found the scars of herpes over the forehead, upper lid, and side of nose. The eye was still, six weeks after the attack, much inflamed, and the cornea extensively hazy. She was delighted to learn that it had not been erysipelas, and that she would not be liable to its recurrence. We allowed her to go into the air, and gave tonics, and her general health much improved. The cornea cleared to a great extent.

CASE XI.—*Shingles of Forehead and Nose, with Superficial Ulceration of Cornea.*

In January, 1866, Dr. King, of Hackney, brought to me, on account of commencing cataracts, a very healthy old gentleman of 60. His left forehead and side of nose showed the scars of herpes, and in the cornea were some thin opacities. The attack had occurred a year before, and had been attended by the usual symptoms.

CASE XII.—*Shingles of Forehead only, with Implication of the Eye.*

My friend, Dr. Markham, suffered from this curious disease this year, and, as his case was mentioned, I believe by himself, in the journal of which he was then editor, I cannot do better than extract it in his own words. It affords, moreover, an interesting illustration of the value of portraits of skin diseases, especially of rare diseases. I am very glad to be able to add that in Dr. Markham's case the oculo-nasal nerve was not affected. No vesicles appeared on the nose, and the eye did not inflame. He, at present, has the deep scars of herpes in the forehead, but the eye is quite sound.

The following is from the "British Medical Journal," vol. i, 1866, p. 470:—

"A few months ago, at a meeting of the Council of the New Sydenham Society, two new plates of the series of skin diseases were presented to the Council for approval. One of these plates, representing a specimen of herpes zoster of the head and face, excited a little amusement among some of the members. 'Who had ever seen the disease in such a part? Surely it was

unnecessary to depict so rare and far-fetched a complaint.' Curiously enough one of the Council, Dr. Markham, who had had his joke on the occasion, was himself last week pronounced by his friend Dr. Stewart (another of the unbelieving ones), to be 'a splendid specimen of that very disease we were joking about a few months ago at the Council of the Sydenham Society.' Herpes zoster of the head and face is, however, no joke to the patient. A man need wish his worst enemy no worse week's or fourteen days' excitement than that of an attack by it. In the present case the disease was limited to the course of distribution of the left supra-orbital nerve, and shewed, throughout, its distinctive nerve character. Five days before the eruption appeared there was constant neuralgia of the aforesaid nerve and hemi-crania. Considerable itching and several hardish and painful subcutaneous elevations preceded the vesicular eruption. The eruption was markedly limited to the left side of the forehead and head, and the root of the nose, and to the left upper eyelid."

In the above account Dr. Markham's description of indurations preceding the vesicles is of special interest. This form of herpes almost always leaves scars, and no doubt the depth at which the inflammatory process begins is the chief cause of this. It is, perhaps, probable that the thicker the portion of skin in which is attacked, the greater the risk of deep scars, since the deeper are the papillæ placed in which the diseased process begins. Where the skin is thin scars rarely result.

CASE XIII.—*Shingles of Forehead and Nose, with Inflammation of Conjunctiva and Iritis.*

My friend, Dr. Woodman, then the Resident Medical Officer at the London Hospital, was kind enough, about two years ago, to show me a good example of this disease. The patient was a girl of about 16, under Dr. Parker's care. The eruption covered her left forehead and side of nose. The eye was much congested, and there was a single distinct mass of lymph on the iris. The disease passed away favourably, but left the cornea slightly opaque, and the pupil adherent at several places.

CASE XIV.—*Shingles of Forehead only, without Implication of the Eye.*

Professors Danielsen and Boeck have published in their excellent series of Portraits of Skin Diseases a very good illustration of this disease, probably the first ever delineated. It shows the head of an old man, with the right half of the scalp covered with vesicles. There are none on the nose, and the eye is not inflamed.

CASE XV.—*Shingles of the Forehead—Notes Imperfect.*

Rayer has mentioned a single case. The patient was a man aged 47. The left forehead and side of scalp were the parts affected. There is no information as to the nose or eye.

CASE XVI.—*Shingles of Right Forehead and Side of Nose—Inflammation of Cornea and Conjunctiva and Iris.*

Dr. Broadbent has very kindly just placed at my disposal the notes of the following case:—

The subject of it is a young officer, aged 23, in good health. Dr. Broadbent saw him for the first time on the fourteenth day after a severe eruption of herpes on the right forehead. It extended "half way down on the side of the nose," and was for the most part sharply defined by the median line. Respecting the eye, Dr. Broadbent writes:—

"The conjunctiva is generally injected, with here and there a small red patch. The sclerotic also is injected. The cornea is transparent, but not so bright as the other. The iris is slightly dull, acting on exposure to light, but only slowly as compared with its fellow. The pupil is circular; a trifle larger than the other, and not having the clear black appearance of the healthy pupil, the media, I suppose, being hazy. There is no marked photophobia. The sight is improving, but at present objects are dim, and he cannot make out large ordinary print at all."

CASE XVII.—*Herpes Frontalis—No Vesicles on the Nose, and no Inflammation of the Eye.*

This case has been mentioned to me by a medical friend. The subject of it was a young girl who had a sharp attack of herpes on the forehead. No vesicles appeared on the nose, and the eye, beyond a little congestion, did not suffer.

CASE XVIII.—*Herpes on the Forehead and side of Nose, chiefly on the latter—Inflammation of Eye—Ptosis and Dilated Pupil.*

Whilst these sheets were going through the press, another, and perhaps the most instructive case that I have ever seen, has just come under my notice. Yesterday (November 1st) a woman, aged about 60, came to me at Moorfields, having the right half of her nose scarred most deeply, from the root to the tip, by herpes. On her forehead are a few scattered and characteristic scars, but the stress of the disease has fallen on the trochlear and nasal nerve-territories, and this to a degree which I never before witnessed. It suggests the possibility that one may yet see a case in which these nerves suffer alone, and the frontal wholly escapes. This patient reported that she had just recovered from "a very bad attack of erysipelas." She has not the slightest perception of light. The cornea is hazy, but without any dense opacities; the pupil is dilated to twice its normal size, and absolutely fixed. There appear to be a few iritic adhesions, but they are small, and the pupil is not closed. The iris has lost its lustre. The globe is not hardened. The upper lid droops so as to quite cover the eye, but she can raise it a little. None of the recti muscles are paralysed or materially impaired.

The occurrence of a dilated pupil in connexion with herpes is new to me, as is also that of ptosis. Both are no doubt connected with impairment of the third nerve. Dr. Broadbent has just published a very interesting case of herpes affecting certain parts of the arm, and followed by muscular impairment, and an almost exactly parallel one to that which he mentions has recently been under my own care. Hitherto herpes has been supposed to affect the sensory nerves only, but we have here

three examples of motor paralysis following it. In all the cases which I have seen in which the eye was affected, paralysis of the iris and total immobility of the pupil ensued.

In Mackenzie's renowned work,* I find under the head "*Herpes affecting the Eyelids*," the following:—

"There is scarcely any cutaneous disease which may not be seen occasionally on the eyelids. Herpes I have often met with, both in children and adults. It runs its usual course of about a fortnight, leaving pits like those of small-pox. Not unfrequently it attacks the cornea, a vesicle having its seat there, ending in an ulcer."

Dr. Mackenzie does not mention iritis, nor does he specify the peculiarity of the eruption in affecting the *upper* eyelid only, nor allude to its extension on the forehead and scalp, and to the side of the nose. Possibly some of the cases which he refers to were not instances of true herpes zoster, at any rate not of frontal zoster.

The following is the account, extracted from the Catalogue, of the wax model in the Museum of Guy's Hospital:—

"163⁵. Herpes ophthalmicus (brow shingles) or herpes occurring in connection with ophthalmia.

"Case of a boy, æt. 5, who was attacked with inflammation of the eye, and at the same time the herpetic eruption appeared. Duration a week when the model was taken, 1857.

"163⁶. The same a few days afterwards."

The wax model to which this refers shows the left eyelids of a child. Both the upper and lower eyelids are very much swollen, tense, of a dusky red colour, and present numerous clear vesications. There are more vesications on the upper than on the lower eyelid. There are a few on the side of the nose close to the inner canthus, and about a dozen extend from the outer angle towards the ear. How far they went towards the ear cannot be seen in the model, as it represents only the front of the face. As to what the condition of the eye was we have no information.

I have never seen an example of the very rare disease illustrated in this very valuable cast. The eruption does not follow

* 3rd edition, page 149.

the known distribution of any nerve,* and is quite different in locality, if not in kind, from the disease I have been considering. The application of the epithet "brow shingles" to this cast is curious, since it implies a familiarity with other cases of true frontal shingles, whilst in this instance it is so far inappropriate that there are no spots above the eyelid itself.

The Guy's Museum does not, as far as I can ascertain, contain any cast or portrait of frontal herpes.

I extract the following from Professor Hebra's work on skin diseases, now in course of translation for the New Sydenham Society:—

"(a) *H. Zoster capillitii*.—This often appears on the forehead and scalp, in the course of the *supra-orbital*, a branch of the first division of the fifth nerve passing from the supra-orbital notch upwards to the top of the head. In some of these cases the eye also is affected; the vessels of the conjunctiva and those which supply the cornea being injected, and severe pain being complained of by the patient. Under these circumstances, indeed, the mobility of the iris may be so much impaired that the disease may simulate an *Iritis*."

Hebra does not describe any form affecting the eyelids only, nor does he say anything of the side of the nose, excepting in connection with herpes of the cheek.

* My friend Mr. Waren Tay has suggested to me that this form of true *palpebral* herpes may perhaps be explained as due either to the lachrymal nerve or the orbital branch of the second division of the fifth. This latter gives or receives a branch or branches from the lachrymal. It is thus quite possible that in some individuals both the two eyelids and the temporo-malar region may receive twigs from the same nerve. We must, of course, allow for some irregularities in the distribution of sensitive nerves.

TABULAR STATEMENT OF EIGHTEEN CASES OF HERPES FRONTALIS—SEU OPHTHALMICUS.

No.	Name, Date, Reference.	Age.	Health, Premonitory Symptoms, &c., &c.	Parts Affected.	Nerve Affected.	Remarks.
1	George Morgan. The Ophthalmic Hospital. September 9th, 1861.	63	Florid; nearly bald.	Left forehead, upper eyelid, iris, side of nose to the tip.	Whole ophthalmic division of fifth nerve.	The eye inflamed and was practically lost.
2	Mrs. Kimpton. Metropolitan Free Hospital. December 17th, 1861.	26	Very pale and feeble.	Left frontal region, and mid-region of side of nose.	Frontal and trochlear branches.	Eye not inflamed.
3	William Woolgar. March 29th, 1862.	3½	In usual health.	Right forehead, and mid-region of side of nose.	Frontal and trochlear branches.	A portrait of this boy is published in the New Sydenham's Society's "Atlas of Skin Disease." Eye not inflamed.
4	Joseph Bond. July, 1859. L. 211.	56	Subject to bronchitis.	Left forehead.	Frontal division only.	He had also shingles of the right side of chest at the same time. Eye not inflamed.
5	A. B. A clerk. The Ophthalmic Hospital.	25	In good health; ten days' premonitory pain (severe).	Left forehead.	Frontal division only.	Eye not inflamed.
6	Mrs. Barnes. The Ophthalmic	64	Pale and thin, but in good health. Severe head-	Right forehead.	Frontal division only.	This was not a very severe case. The eye was not affected at

7	Hospital. June 9th, 1863.	ache preceded the herpes, but was not confined to the forehead.				the date of my notes, but I have no record of subsequent progress.
17	A healthy sailor.		Forehead and side of nose.	Frontal, trochlear and oculo-nasal branches.		The notes are imperfect and do not state more than that there was much mucous discharge from the eye.
69	A tailor, in good health. Had pain in the part, and also a slight rigor the day before the eruption came out.		Left forehead, and side of nose, iris, cornea, &c.	Frontal, trochlear and oculo-nasal branches.		The cornea was left with extensive opacities, and the iris was adherent at the pupillary edge. Throughout the whole attack the pupil could not be made to act with atropine.
68	A spare but healthy lady.		Left forehead, side of nose, cornea, conjunctiva, and iris.	Frontal, trochlear and oculo-nasal branches.		This patient came to me a month after the attack, on account of the damage to the eye.
66	A lady in rather feeble health, and with suspected renal disease.		Forehead, side of nose, cornea, conjunctiva, and iris.	Frontal, trochlear and oculo-nasal branches.		As in the preceding case this lady came after the attack on account of the state of her eye. The cornea was hazy, the pupil fixed, and the skin numb.
60	A very healthy man.		Forehead, side of nose, conjunctiva, and cornea.	Frontal, trochlear and oculo-nasal branches.		This gentleman was sent to me by Dr. King, of Hackney, on account of cataracts.
46?	Good health.		Left forehead and side	Frontal. The eye		This accomplished physician

TABULAR STATEMENT OF EIGHTEEN CASES OF HERPES FRONTALIS—SEU OPHTHALMICUS (*continued*).

No.	Name, Date, Reference.	Age.	Health, Premonitory Symptoms, &c., &c.	Part Effected.	Nerve Effected.	Remarks.
13	A girl under Dr. Parker's care in the London Hospital.	16?		of scalp.	fortunately did not inflame.	was himself the patient.
14	Danielsen and Boeck's "Atlas of Skin Diseases."	65?	Good health.	Left forehead, side of nose, and iris. Right forehead and side of scalp.	Frontal, trochlear and oculo-nasal branches. Frontal.	Dr. Woodman was kind enough to show me this case. No inflammation of the eye.
15	Rayer's case. A man.	47		Left forehead.	Frontal division only.	Eye not mentioned.
16	Dr. Broadbent's patient. An officer.	23	Spare, but in good health.	Right forehead and side of nose, but not to the tip. Forehead.	Frontal and both trochlear branches. Frontal.	The eye inflamed, and the cornea was slightly opaque. Eye not inflamed.
17	A girl.	12		Right forehead, and side of nose.	Frontal, trochlear and oculo-nasal.	The side of the nose chiefly affected. Complete blindness resulted.
18	Mrs. ———. Ophth. Hosp.	60	Good health.			

The average age in the above eighteen cases was 47 years. Eleven were males, and seven females. The right side was affected in five cases, the left in nine. In all the tract supplied by the frontal nerve (forehead and front part of scalp) was affected; in eight the side of the nose, also in six of the latter the cornea and iris inflamed. In none of the cases in which the frontal nerve *only* was involved did the eye inflame, whilst it suffered in all in which the nasal branch was implicated (as shewn by eruption on the end of the nose). In two in which the trochlear branches were implicated, without the nasal, the eye did not inflame.

The clinical fact that the eruption may appear on the cutaneous territories of certain branches of the ophthalmic division of the fifth, whilst others are free, appears to me of the utmost importance. To appreciate its bearing we must recollect the anatomical distribution of this nerve. The ophthalmic division of the fifth, a purely sensory (and trophic?) nerve after leaving the Gasserian ganglion, gives off a small twig to the tentorium, and then enters the orbit through the sphenoidal fissure. Just before entering this fissure, it has given off its nasal branch, and has then divided into frontal and lachrymal trunks. Between the Gasserian ganglion and its place of division it has received twigs from the cavernous plexus of the vaso-motor nerve, and very often a considerable branch of communication (to or from?) has passed between it and the fourth nerve. The destination of the frontal branch is to the skin of forehead, anterior two-thirds of scalp, the eyebrow, upper eyelid, and adjacent part of nose. Its two trunks which supply these parts have received the names of supra-orbital and supra-trochlear branches. Now the territory most frequently affected in ophthalmic shingles is that of the supra-orbital nerve, and next to it comes that of the supra-trochlear. The frontal is often affected without the supra-trochlear, but the latter never suffers alone. Both are often affected without the other branches, and when this

occurs the eye does not inflame. We have next to consider the lachrymal branch. This branch gives filaments to the lachrymal gland, to the conjunctiva, and lastly, to the skin of the upper eyelid. It is therefore not very easy to tell in any given case of ophthalmic shingles whether it is affected or not. It is difficult to tell whether or not the lachrymal gland is inflamed, and both the conjunctiva and the upper eyelid receive branches from other sources also. In any instance, however, in which the eruption is unusually free on the upper eyelid, and there is great swelling and much conjunctival congestion, we may safely believe that the lachrymal nerve is concerned. We have lastly by much the most important of the branches, as ophthalmic herpes is concerned. I allude of course to the nasal, or as it is better named, the *oculo-nasal*. This nerve, soon after leaving the main trunk, gives off the long root of the ciliary ganglion, from which the short ciliary nerves pass to the iris. It next gives off the long ciliary branches, which run directly to the ciliary muscle and iris, and subsequently it divides into two branches, which supply the middle and tip of the side of the nose with sensation, under the names of infra-trochlear and external. It follows then, that to know whether or not the nasal nerve is concerned in an attack of ophthalmic shingles, we must look for vesicles on the side of the nose, especially near to its tip. My cases are as yet too few in number to authorise a confident statement, but thus far I have never seen the whole side of the nose affected without also witnessing inflammation of the eye, and I have never seen the eye inflame unless the side of the nose showed vesicles. This fact (if it be one) seems to give us a step towards a knowledge of the trophic nerve of the eyeball.

It may, perhaps, be objected that the trophic disturbance resulting in iritis in connexion with herpes, begins in the lenticular ganglion, and passes from it to the oculo-nasal nerve instead of, as I infer, in the opposite direction. This, however, is most improbable, for whenever the oculo-

nasal nerve is affected in herpes, the other and larger divisions, frontal, &c., are also concerned, and these have no communication with the ciliary ganglion. If, further, the irritation began in the ganglion, instead of being taken to it by the branch from the oculo-nasal, then we ought to have cases in which the iritis is the earliest and most prominent symptom, which is not the case, the skin inflammation always appears first, and predominates in severity.

Although unwilling for the present to allow speculation to lead me further, I must beg to warn against hasty inference from the fact, that sometimes only one branch of the ophthalmic nerve, and sometimes all are affected, that it is therefore probable that the disease commences in the nerve trunks after sub-division, rather than in the cerebral or ganglionic centres common to them all. Such an inference is surely most unfounded. The nerve tubules which are to be distributed as the "frontal nerve," for instance, are just as distinct from those constituting the nasal branch when they are bound up in one bundle and called collectively the "ophthalmic nerve," as they are subsequently when divided. There can be little doubt that whatever may be their mutual relations for convenience of transit, that they are perfectly distinct from one another from beginning to end. It is therefore easily comprehensible that a source of irritation beginning either in the Gasserian ganglion, or in the meso-cephale itself, may be restricted in its influence to one branch only.

In almost all cases the tract of skin involved in the eruption remains for long partially anæsthetic. When the eye has been involved, the cornea frequently loses sensation, and never fully regains it.

NOTES OF 'MISCELLANEOUS CASES.

By JONATHAN HUTCHINSON, F.R.C.S.

CASE I.—*Cataracts in Childhood fully developed in one eye.—Operation on one eye at the age of fifteen.—No sight obtained owing to atrophic changes in Optic Nerve.—Pupil of this eye very active.*

C. H., æt. 15, was under my care in 1863; a pale delicate lad. Teeth of good form, but crowded.

He came to me with divergent squint of the left eye, and a milky cataract, very white and opaque. The pupil was small, and acted most freely. I have never seen a pupil more active. He had also good perception of light, considering the cataract. The cataract had been noticed at two years old. He could move the eye in all directions when the other was covered. I had much hope from these symptoms that the fundus was healthy, and advised an operation. His other eye had an advancing cataract, but by shading it he could still see to read.

I operated on September 1st, at the London Hospital. On touching the capsule with the needle, all the fluid lens escaped into the aqueous. I at once used a broad needle and then a curette, and removed *all* the lens, leaving a beautifully clear pupil. No pain followed the operation.

A week after the operation, all being quite quiet, we tried his sight. He could only just see a hand, and could not make out fingers. With a lens he saw no better.

September 21. Ophthalmoscopic examination. Veins large and turgid; arteries small. The optic nerve was grey white; choroid thin; no pigment deposits. I advised him to wait as regards the operation on the other eye.

He is said to have been very delicate when an infant, and to have suffered from "water on the brain." Has since been a great reader. He is the youngest of five; all the others have excellent sight.

CASE. II.—*Hypermetropia with Presbyopia.*—Long continued employment of one eye for distance, and the other for reading with glasses of different strengths.

A case which at first glance seemed puzzling, came under my notice a few months ago. A woman of 55 complained that she could not get glasses to suit her, "she had changed twelve times in the last 20 years." I ascertained that she was using + 9, and that with them she could read Snellen L. at 20', and just make out words of Snellen 2, at 12". Without her glasses she could see nothing at 20', and only Snellen 12, at 5". Thinking that she was hypermetropic and presbyopic, and needed stronger glasses for reading, I tried + 7, and found to my great surprise that she saw but little better in the distance, and could not read nearly so well as with her own. Finally + 8 seemed the best for distance, *but not so good as her own weaker ones (+ 9) for reading.* In this dilemma I tried her own glasses again, and now found that she had + 9 in one side, and + 6 in the other. Her eyes were exactly alike, and she had been accustomed to use one eye (left) with + 9 for distance, and the other (right) with + 6 for reading. The riddle was thus solved.

I ultimately gave her + 5 for reading (and she could with these easily read ^{brilliant} at 12"), and + 8 for distance.

It is interesting to note that although this woman had for two years been using glasses of different powers, and employing one eye alone for distance, and the other alone for reading, yet she was not aware of it, and no damage appeared to have accrued to the eyes. She had experienced but little inconvenience, and had her glasses been respectively of their proper strengths, I think she would have been content to go on.

CASE III.—*Extrusion of the Eyeball from the orbit caused by a thrust with a stick.*—*Paraphymotic Strangulation of the Globe entirely preventing replacement.*—*Excision of the Globe.*

The following curious case in which the replacement of an ejected eye was found to be impracticable, is the only instance of such injury which has ever come under my notice. The house surgeon had attempted reduction before I was sent for, and with equal want of success:—

Edward Tyler, a robust man, aged 20, came to the London Hospital about midnight, October 28th, 1864, with his left eye completely ejected from its socket. The eyeball was literally on his cheek, and was very tightly strangulated by the everted eyelids.

There was a small wound beneath the inner canthus close below the edge of the lower eyelid. The conjunctiva was entire. Whilst standing in a crowd, some one had stepped backwards, and thrust the end of a stick "into his eye." It was at once withdrawn, and its possessor immediately decamped. It fortunately happened that the injured eye had been almost blind for years. Finding all efforts at returning it to its place quite hopeless, I determined to remove it. This was done very cautiously, in order that we might ascertain the condition of the optic nerve without injuring it. After dividing the conjunctiva and muscles, the globe was drawn away, and it was found that the optic nerve had been torn completely across, three-quarters of an inch behind the globe. On exploring the orbit with the finger, its bony wall about the apex was felt to be extensively denuded of periosteum. The edges of the sphenoidal fissure could be easily felt. No fracture could be discovered, but from the nature of the injury we much feared that the thin and brittle bones of this part might have been splintered. In subsequent treatment the man was kept in bed, and ice applied to his scalp and eyelids. He did uninterruptedly well, and no indications of arachnitis were ever developed. He left the hospital at the end of three weeks.

The eyeball is now in Guy's Hospital Museum, forming one of the series of specimens sent in with my prize essay on Injuries to the Head.

CASE IV.—*Case illustrating the Stationary Character of some Cataracts.*

Mrs. Woolmar, æt. 59, came to me at Moorfields on February 5, 1866, on account of an acute ulcer of one cornea. She had, in addition, an over-ripe cataract in one eye, and a commencing one in the other, and upon these the interest of her case centres.

She brought with her a "hospital paper," dated April 13, 1848, with the diagnosis in Mr. Bowman's handwriting of "Cataracts in both eyes, with very opaque patches, the rest of the lens being quite clear," and a sketch of the appearance of the pupils after the use of atropine.

There was another note, April 5, 1849—"A little extension of the flocculent opacities: the rest of the lenses remaining perfectly clear."

In the left eye the opacity is still almost exactly as Mr. Bowman sketched it eighteen years ago. In the right the cataract is now complete, and has even spots of chalk in it; probably it was complete fourteen years ago, for she says that she was at that date under my care at the Metropolitan Free Hospital, and that I then advised an operation for its removal. As to how long the cataracts had been in progress before Mr. Bowman saw her, we have no evidence. She says that she never had very good sight, and that she had not noticed her sight getting much worse before she consulted Mr. Bowman, to whom she came chiefly because her friends told her that "white specks were forming."

Up to the present date she is still able, with her left eye, aided by a glass, to read and thread her needle.

Mr. Bowman's pen-and-ink sketch represents a well defined angular opacity in the upper and inner part of the lens, and a second mass lower down, both of them peripheral. The apex of the upper one reaches nearly to the centre. I asked Mr. Waren Tay to make a sketch of the present opacity (after use of atropine), and his delineation corresponded almost exactly with that by Mr. Bowman. The rest of the lens is still perfectly clear, as further proved by her present state of vision.

CASE V.—*Liability to Headaches.—Slowly progressive Amaurosis, with pallor of Optic Discs.—Death after a twelve hours' illness with Paralysis (Apoplexy).*

Mrs. W. Sorrel, æt. 51, became an out-patient at the Moorfields Ophthalmic Hospital in December, 1865. She then said that her sight had been failing for four or five months. The first symptom she had noticed was that she could not see to thread her needle. She had been liable for long to severe pains

in her head, not located in any one spot, but extending "all over." She had attributed them to the "rheumatics." They did not usually keep her awake at night.

As regards her previous history, she stated that she had been married for twenty-seven years, and had had eight children. The eldest of these died as soon as it was born, the second was living and healthy; all the others died early. One died last December of "consumption," æt. 12; this caused her great trouble, and to it she attributed her failure of sight.

The early deaths of so many children look suspicious of a syphilitic taint, but no history was obtainable. She also said that her husband was troubled with "scurvy," attended as an out-patient at the London Hospital for ulcers in his legs, and was liable at times to inflammation in his chest. Her mother died at the age of 75, and her father at the age of 57, and their eyes had never been affected in any way.

As above stated, her first symptom of defective sight was inability to thread her needle; for a time she saw double, but that passed off; later on she found she could not tell people in the street. "She always seemed in a fog." She had no alternating bright and dark days. She had no nausea, but occasionally was troubled with flashes of light.

At this date it is only noted as to the state of her eyes that her pupils were "rather large," that she could but just read the largest letters (No. 20 Jaeger) with the right eye; with the left she could not see the letters even. At the distance of twenty feet with the right eye she made out CC Snellen.

January 15.—It is noted that with the left eye she can find the window, but cannot count the "bars." With the right eye reads No. 20 Jaeger at from one to two feet. She also told the time by the clock (a guess?) but can still only make out CC of Snellen.

Ophthalmoscopic Examination.—Both optic discs are pale, and of a yellowish tinge. In the right eye, the part of the optic disc next the yellow spot is decidedly paler than the rest. In the left, the pallor is general. The artery (central) is perhaps a little less than normal, and the vein a little larger, but there are no other morbid changes.

February 12.—She has no headaches, and feels better.

February 19.—The urine has a sp. gr. of 10·15, is perfectly

clear and limpid, and on testing seems quite free from albumen and sugar.

February 26.—She again tells the time by the clock, but cannot get higher than Snellen CC.

Mrs. S. died on March 28, after 12 hours' illness. She had felt quite as well as usual during the previous day, and thought her sight improving. Suddenly she complained of pain in her head; said that "she could not open her eyes;" "my brain is turning, I shall go mad;" then threw herself back, and never spoke again. Her lower extremities appeared to be quite paralysed, and the upper extremities and face were much convulsed.

We were not informed of her death until some time afterwards, and the above particulars of symptoms which preceded it were given by her husband. No *post mortem* was obtained.

The case supplies us with another fact, although incomplete, towards our knowledge of prognosis in cases of cerebral amaurosis. It also illustrates the remark so often made that when amaurosis with white atrophy occurs in women there is almost always something either in the concurrent symptoms or in the sequel which marks the case as altogether different from those which are so common in the male sex (smokers).

CASE VI.—*A good example of used-up Eyes—Acquired Myopia—Ophthalmoscopic examination—Sclerotico-choroiditis posterior.*

The following case is the best instance of acquired myopia, aggravated into almost complete blindness, that I have ever met with. That the myopia was really acquired, I think is certain, for my patient was very intelligent, and assured me that through the first half of his life his vision, for distance, was good as that of any one he ever met with. It would perhaps not be possible for any one to subject his eyes more continuously to the causes of myopia than he had done. Although the case is only an extreme example of a large class, yet, as such, it seems to me worthy of narration.

Mr. M., æt. 68, a very intelligent man, has been all his life engaged as a reader for the press. In this vocation he would often read continuously at small print, and in the most careful

manner, from five in the morning till eleven at night. In early and middle life he had excellent sight, both for near and distant objects, and even under the labour he exacted from them, his eyes never felt fatigued. Twelve years ago (1852, æt. 56), he first noticed "a bee's wing" before the left eye, and found also that he was becoming short-sighted. He now began to use concaves whenever he went to church or theatre, but did not use them at his work. He found that he could not see more comfortably to read his proofs with glasses, and only used them occasionally to relieve the pressure on his chest induced by stooping forwards. He still went on with his work regularly.

In 1854 his eyes had got so much worse that he was obliged to diminish his hours of work. The eyes now began to ache much after working long; still he did not find any assistance from glasses. Numerous black spots were now seen before both eyes.

In 1858 the eyes began to fail much more rapidly. His eyes often ached, "as if they had been struck by a ball." In January, 1859, he could only see the largest objects. Since then he has not got materially worse. He is still able to get up the news by reading the street placards of newspaper contents, stooping and getting close to them. Even then he is obliged to miss such announcements as are given in less than the largest letters.

At 8'' he manages to spell out letters of No. XXX Jaeger.

Concaves have the effect of obliging him to keep at a greater distance from the object, and of much diminishing the clearness of his perception, *i.e.*, the objects are diminished in size, and his weak retina needs the very largest.

With the ophthalmoscope we found large irregular patches of the sclerotic near to the optic disc exposed (sclerotico-choroiditis posterior). In each eye the denudation approached, but did not actually involve the yellow spot. The optic discs were pale, and their arteries smaller than natural. There was not the least cupping. The media were clear, with the exception that in the peripheral part of each lens were a few small opaque striæ. The inverted image was easily visible without an object lens.

SPONTANEOUS RUPTURE OF FILM OF CAPSULE THREE MONTHS AFTER EXTRACTION OF LENS.

By W. NEWMAN, M.D. (of Stamford).

A woman, *æt.* 73, came to me July, 1865; I extracted by upper section the lens from the right eye; healing was tedious, iris implicated in wound, and ultimately a balloon-shaped pupil with well-marked film of capsule over it.

She could see outlines and masses, but said everything looked as if it was covered with mist.

The eye was nearly pale, and I had intended to tear up the film with two needles; when, at the end of October, she was one day using force to shut a window, when suddenly she became able to see well; at the present time, with glasses, she can see perfectly.'

I saw her some days after the accession of sight, the pupil was small, but clear from capsule.

REMARKABLE VOLUNTARY POWER OVER THE MUSCLES OF THE EYEBALL, ACQUIRED BY TRAINING.

By HENRY W. WILLIAMS, M.D. (of Boston, U.S.).

On the 21st February, 1865, I saw at the City Hospital, J. N., a man of about 45 years of age, whose right eye had been struck by a piece of iron five years previously, since when he had seen indistinctly.

On examination, the lens was found to be dislocated outwards and upwards, and suspended in such a way that it floated backwards and forwards with every considerable movement of the eyeball.

It had a slight, uniform opacity, which could be seen in a favourable light without oblique illumination.

Through the clear space towards the inner side of the pupil he could see distinctly with cataract glasses.

But the most interesting feature of his case was an extraordinary power over the muscles of the globe, by which he gave to the eyes almost inconceivably rapid oscillating movements, in every direction, at pleasure.

The motions resembled those of nystagmus, but infinitely increased in velocity, and could be made with equal readiness from side to side, upwards and downwards, or by causing the obliqui to act, in rotation. These movements might be styled flashing, so great was their rapidity.

Besides these more extended motions, he had the power of causing a slight quivering of the eyeballs, giving a very peculiar effect.

His statement was, that he discovered, at eight years of age, that he could give to the flame of a candle an apparent dancing motion before his eyes, and by practice he had increased his control of the muscles till it had attained its present degree.

GLAUCOMA WITH UNUSUAL FEATURES OCCURRING IN A YOUNG AND HEALTHY MAN.

(Under the care of MR. CRITCHETT.)

The following are brief memoranda of a very unusual case of glaucoma which was under observation a few months ago. The patient was quite blind, and had very deep glaucomatous cups whilst his media, cornea, &c., still remained perfectly clear. His eyes, therefore, presented an unusually favourable opportunity for class demonstration of this subject, and were so employed. He had never had pain in the eyes themselves nor was there the slightest trace of congestion.

W. L., aged 25, a very healthy-looking man, was admitted as in-patient, in December, 1865. In December, 1864, he had first noticed a mist before his right eye. In two months he could see next to nothing with it. The left soon afterwards failed, and in six months he was blind.

He had had a little pain in the right side of his forehead before the right eye failed. He had flashes of light "like light-

ning," "they used to frighten him." He was also troubled with "muscæ."

He has been subject to toothache all his life, but was not specially so at the time his eyes failed. The pain in the right forehead continued, intermittingly, till within last two or three months. Pain in the left forehead came on when the left eye failed. He has flashes of light now before both eyes. He has had no pain in the eyeball itself from beginning to end.

He has never had any illness at all that he can recollect.

When he came to Mr. Critchett, both globes were very hard, but neither of them in the least congested. He could scarcely tell light from darkness. The media and cornea were perfectly clear, and in each eye with the ophthalmoscope a deep cup was seen. The veins were large and tortuous. The discs were very pale.

The stage being so far advanced no treatment was advised.

NOTE ON AN EASY MODE OF DISTINGUISHING BETWEEN
HYPERMETROPIA AND MYOPIA IN ORDINARY OPHTHAL-
MOSCOPIC EXAMINATION.

By GEORGE COWELL.

IN the ophthalmoscopic examination of an eye, which is sufficiently ametropic to give an image of the retinal vessels, without the interposition of an objective convex lens, it is often somewhat difficult to determine, particularly when the ametropia is slight, in which direction the abnormality lies; and this is particularly the case with those who use the ophthalmoscope but little. Of course the difficulty would not exist if all ophthalmoscopists had the power of completely relaxing their accommodation at will, but as this is an acquirement possessed by few, some simple method is necessary; and this must be my excuse for forwarding this note to the Ophthalmic Hospital Reports.

The ordinary plan adopted is for the observer to move his head slightly from side to side or upwards and downwards, according as the direction of the retinal vessel is perpendicular or horizontal, when the image will be seen to move with the head, if the image be erect (hypermetropia), or in a contrary direction if the image be inverted (myopia). But this plan is far from being free from error. By slight movements of the patient's eye, exactly opposite movements of the image will be produced, nullifying or exceeding those produced by the motion of the observer's head, and thus possibly rendering a series of observations contradictory. Mr. Hutchinson has a good plan of correcting this by means of the ordinary convex object lens. He found that by approximating it to the eye observed, the image increased in size if hypermetropia were present, but diminished if the opposite condition existed. In slight deviations, however, the appreciation of the change in size becomes somewhat nice.

The plan which has appeared to me to be most free from error is the following:—A finger of the hand not employed in holding the ophthalmoscope is held up as an object for the patient to fix with the eye under examination, and in such a position that the observer may get an image of one of the retinal vessels. If the finger be then slightly moved to and fro in a direction perpendicular to the vessel, the image will be seen to move with the finger when myopia is present, and in the opposite direction when the eye is hypermetropic. That this is so, explains the difficulty of forming a correct diagnosis when the method previously mentioned is adopted.

CASES SELECTED FROM MR. DIXON'S OUT-PATIENTS.

Reported by MR. WARREN TAY.

CASE I.—*Blindness, with White Atrophy of the Optic Nerves in connection with Idiocy and Epilepsy—History of Nervous Disorders in many of the Patient's Relatives.*

Elizabeth Childs, æt. 16, came under the care of Mr. Dixon July 31st, 1865.

This patient was almost idiotic; she had not menstruated, and had been liable to "fits" from infancy; and there was a history of liability to "fits" on the mother's side of the family, though her mother had not suffered herself. Her grandmother, after the birth of her fourth child, became subject to them, and two out of five of her mother's living sisters are liable to them, and the three others "cannot keep themselves still." Two of her mother's brothers were liable to "fainting fits and bleeding at the nose."

This patient's sight had begun to fail about five years ago, (when the "fits" had recurred more frequently than usual), and had been gradually getting worse since, until she had now little more than perception of light.

With the ophthalmoscope "blue-white atrophy of the optic

disc" in each eye was detected. It was noted that the central vessels were of good size, and that the margins of the disc were clear and distinct, evidently an advanced stage of "white atrophy."

CASE II.—*Choroido-retinitis, resulting in Total Blindness.—No special cause discovered.*

Anne Baldwin, æt. 19, was admitted under the care of Mr. Dixon on March 17, 1864. She appeared to be in good health, and was moderately florid; her teeth were good; her aspect was not indicative of inherited syphilis, and no suspicious facts as to family history could be obtained. Her brothers and sisters (six) were reported to have very good sight. It was stated that up to eight years of age she was strong and healthy, but at that time she had the "whooping cough," and afterwards her sight gradually failed. At the age of eleven, owing to her defective sight, she fell into a well and hurt her spine.

For four years before she came under care she had been practically blind. There did not appear to have been any inflammation of the eyes, and she did not admit having had any pain in the eyeballs. She stated that she had suffered much from pain across the forehead habitually, but it was never sufficient to keep her awake at night. She never suffered from giddiness, nor swelling of her feet, nor weakness of her lower extremities. Her hearing and memory were both good.

There was slight divergence, with twitching of the globes. The pupils were of normal size, but very sluggish. The right eye was quite blind, and she could only just see light with the other.

Ophthalmoscopic Appearances.—The media were quite clear in both eyes. In the *left*, the optic disc was pale, and of a greyish tint (not white). The smaller vessels were visible over the whole of it. The larger vessels were much diminished in size, but quite visible, the vein being larger than the artery, but not of dark colour. The choroid was speckled over with irregular aggregations of pigment in very extensive patches, and there were numerous apoplexies into the choroid, especially near to the yellow spot. Some of them looked recent.

In the *right* eye, the retinal vessels were more numerous, but

still reduced in size. The disc was greyish, apparently of large size, its margins being indistinct (swollen, "woolly" optic disc). There were very large and numerous pigment patches in the choroid. The retina looked hazy.

CASE III.—*Case in which a foreign body has remained for three years in the vitreous body without causing serious Inflammation of the Eye.—Recent Symptoms of Sympathetic Irritation.*

Edward Cook, aged 38, was admitted under Mr. Dixon's care on May 3rd, 1866. He stated that about three years ago, while he was engaged in "millstone chipping," a piece of iron or stone struck his left eye, and that he had only been able to see large objects with it since. He attended at this hospital for about three weeks after the accident, and it was believed that no foreign body remained in the eye. The eye had been irritable at times ever since, but only during the last three months had he had attacks of severe pain in it. He believed that the lost eye was now affecting the other, as the latter was becoming so irritable that he could not read more than half a column of newspaper print at a time, and a mist would frequently come before it while at work. It was because he was afraid of his better eye failing that he now came for advice. On testing his vision we found that he could read ^{brilliant} very well anywhere between 6 and 13 inches from his right eye. With the injured eye he could read letters of No. 16 (Jaeger). Neither eye was in the least congested, nor was the tension increased in either.

In the injured eye the pupillary edge was adherent to the lens at the outer and lower part, and there was pigmentary deposit on the front of the lens capsule. With atropine the pupil dilated fairly upwards and inwards. A very conspicuous yellow-white body could be seen floating in the vitreous below the lower margin of the pupil. This was best seen with the unassisted eye. With the ophthalmoscope the vitreous was seen to contain many films, which so obscured it that the fundus could not be brought clearly into view.

November 5.—During the last six months this man has remained much as he was. There is no increase of symptoms of irritation. He keeps at his work, and is very unwilling to have anything done to the damaged eye.

CASE IV.—*Primary Cancer of the Iris.—Slow Growth without causing Inflammation.—Excision of the Globe and Examination.*

The following case, as an example of Cancer of the Iris, is of special interest in connection with the almost parallel one recorded at page 189.

Alfred Wale, æt. 25, had been for some months under Mr. Dixon's care, on account of a growing tumour in connection with the lower part of the left iris. No inflammation of the eye ensued at any time; the tumour slowly grew, till it almost filled the anterior chamber, and prevented vision by covering the pupil. As the cornea remained perfectly clear the tumour, which was moulded behind it, was easily seen. It was a greyish, jelly-like mass, with opaque points scattered through it, and was abundantly supplied with minute blood-vessels. Until the pupil was covered the man retained perfect sight.

The date at which the growth commenced could not be determined with accuracy, but the man stated that so long as ten years ago there was something so remarkable in the appearance of the eye, that the late Mr. Ledger, our house surgeon at the time, showed the case to several of the surgeons. At this time the patient suffered no inconvenience, and was not willing to submit to any treatment.

At length the pupil having been covered and the eye rendered useless, Mr. Dixon advised excision of the globe. After removal the specimen was sent to Dr. Bader, the curator of the hospital, for examination. Dr. Bader reported that the growth consisted of a soft greyish brown mass, which adhered to the cornea, and had apparently grown from the iris and ciliary processes. The lens was still clear, but was pushed upwards and inwards. About half the iris was involved with the adjoining ciliary structures. The rest of the eye, even the cornea and sclerotic, to which the growth adhered, were quite free from disease, and showed no traces of inflammation. The mass consisted microscopically of delicate fibrous tissue with cells, some of the latter having several nuclei. Dr. Bader considered it an example of "medullary cancer with pigment."

The man recovered quickly after the operation, and is up to the present time quite well.

PART II.

A Periscope

OF

CONTEMPORARY OPHTHALMIC LITERATURE.

GYMNASTIC EXERCISE OF ACCOMMODATION IN CERTAIN FORMS
OF ASTHENOPIA.[*New York Medical Journal*, October, 1865, p. 15.—ABSTRACT.]

DR. DYER, of Philadelphia, has an interesting paper on cases of asthenopia not complicated by hypermetropia, either latent or apparent. In most the accommodation is good, and in a majority there is some degree of myopia, sometimes very considerable. The patients do not complain so much of indistinct vision when reading, or of fatigue as of absolute pain in the eyes themselves. The pain lasts long, and is not relieved by a short rest; it is generally confined to the eyeballs. There is usually some intolerance of light, especially of gaslight. Its subjects are usually under thirty years of age, and often there has been special debilitating influence at work (masturbation, parturition, &c.). It is never complicated by convergent strabismus, but sometimes by divergence. These patients have usually been advised to rest their eyes. Dr. Dyer recommends on the contrary that they should be made to practice their eyes systematically, by reading for definite periods with glasses. Although unable to detect any insufficiency of the internal recti, he still suspects that there is usually "a discrepancy between the power of the ciliary muscle and the angle of convergence." His treatment is "to change the relation of the accommodation to the angle of convergence by glasses." "To the emmetrope I give convex No. 30 or 36. With a myope of one-tenth or less, I simply correct the myopia. In the higher grades of myopia it suffices to carry the far point out to 10" or 15". He allows of

practice with such glasses for only very short periods at first—three to fifteen minutes a-day, gradually increasing a minute a-day; very precise instructions are given, and no use of the eyes without glasses is permitted. The aim is by gymnastic exercise to increase the vigour of the ciliary muscle.

INFLAMMATIONS OF THE EYE DURING CHOLERA.

[*Mr. McCarthy and Mr. Dove, in London Hospital Reports, vol. iii. (Cholera, Appendix.)—EXTRACT.*]

In a large proportion of cases, when collapse or reaction had been at all severe or prolonged, the following affection of the eye was observed. The vessels of the conjunctiva covering the sclerotic became congested, and the cornea dull. By no means the whole of the front of the eye was thus affected, only a patch elliptical in shape, the angles being directed towards the canthi. It usually included the lower third at least of the cornea. As the disease went on, there was a free secretion of muco-purulent matter from the conjunctival membrane, and the cornea became quite opaque, and in several cases ulcerated. The palpebral conjunctiva was but slightly affected, and in no case was there any considerable swelling of the lids. This affection seems to have been caused by the patients lying with their eyes open in sleep, or during the stupor so frequent in reaction. The lower lid appeared to be drawn by the shrinking of the tissues of the orbit, so that it required an effort to make the lids meet. Hence when volition was withdrawn, the eyes remained open, and the globe being turned upwards, the lower portion of the cornea came to be the part affected by exposure. Of course, the weakened condition of the patient increased the mischief, consequent on the want of protection.

The only treatment required was a weak alum lotion, and, in some severe cases, closure of the lids secured by the application of a pad of oiled cotton wool. In only one case of recovery, that of a female child, aged two years, did this complication prove at all serious. Here both corneæ sloughed rapidly, at a late period of the disease, and total blindness has resulted.

ULCERATION OF THE CORNEA IN CHOLERA—CONDITION OF
PUPILS, &c.

[*Mr. F. M. Mackenzie in London Hospital Reports, vol. iii. (Cholera, Appendix.)—EXTRACT.*]

Ulceration of the cornea is very rare. I have seen only three cases; it occurs in the very young only. It was noticed in an infant three months old, and from that age to three years.

At the very end of collapse, and commencement of reaction, the patient lies in a comatose state, with the eyelids semi-closed; a quantity of mucus secreted on the conjunctiva, or collected at the inner angle of the eye.

The eyelids may remain open for three or more days, without once covering the eye; the axis of the eyeball looks upward, leaving the lower third of the cornea exposed to the air, dust, etc.

Previous to the ulceration commencing, for three or four days, there is, apparently, a layer of opaque lymph covering the exposed surface, more or less. On attempting, in one case, to remove it with the corner of a sponge, I failed, and found it quite adherent, especially over the cornea. On the next day the part of the cornea covered was commencing to ulcerate. The film had separated, leaving a shallow ulcer.

The ulcer is generally crescentic in shape; the outer convex border being nearly at the margin of the lower edge of the cornea; the upper one, or concave edge, corresponding to the margin of the upper lid.

The ulcer may perforate, and follow the same course that ulceration of the cornea does in small-pox, etc. In one case the right eye only was affected.

The pupil, in cholera, varies a good deal; but it is certain that, in adults, during collapse, it is not widely dilated as in the cold stage of ague.

Atropine and calabar bean have the same effect on the pupils during collapse, that they would have in a normal condition.

The fundus has been examined with the ophthalmoscope, by Dr. H. Jackson and myself, but nothing very important was seen. The retinal veins appeared much distended, and were of a deeper colour than normal, and the artery did not look unnaturally small.

TITLES OF PAPERS PUBLISHED IN *KLINISCHE MONATSBLÄTTER FÜR AUGENHEILKUNDE*, MAY AND JUNE, 1865.

Contents :—

Clinical Lectures by Prof. v. Graefe : reported by Dr. Engelhardt.

No. 1. On Amblyopia and Amaurosis.

Records of Cases.

10. Congenital complete iridemia of both eyes.

11, 12, 13. Three cases of disease of the optic nerve from intracranial causes.

14. Traumatic luxation of the crystalline lens, with formation of cataract.

15. Sudden amaurosis of the right eye, with slight exophthalmos and subconjunctival effusion of blood from a bayonet wound of the right zygoma.

16, 17. Two cases of traumatic rupture of the eye-ball.

The same, July, 1865.

Contents :—

Continuation of Prof. v. Graefe's Lecture.

The Electro-gymnastic Treatment of Pareses of the Ocular Muscles : by Prof. Szokalski.

Note on Retinitis Pigmentosa : by Dr. Höring, junr.

The same, August, 1865.

Contents :—

Continuation of Prof. von Graefe's Lecture.

On the Eye Diseases in patients suffering from Epidemic Cerebro-spinal Meningitis : by Dr. Schirmer (Greifswald).

Records of Cases.

18. Dropsy of the Sheath of the Optic Nerve.

19. Ischæmia Retinæ with Secondary Atrophy of the Optic Nerve.

September to December, 1865.

Reports of the Heidelberg Conference, with abstracts of the following papers :—

Prof. v. Graefe, on Modified Linear Extraction.

Pagenstecher, on Extraction of Cataractous Lenses, together with their Capsules.

Iwanoff, on the Pathological Anatomy of the Retina (perivasculitis retinæ).

Javal, on a new Instrument for Testing Astigmatism.

Knapp, on Obtaining a Greater Effect in the Strabismus Operation.

Dor, on an Improved Tonometer.

Giraud-Teulon, Anatomical Observations.

Leber, on the Lymphatics of the Cornea.

Testelin, on Traumatic Amaurosis without objective change.

Nagel, on the Localisation of Double-images.

Alfred Graefe, on Blepharorrhoea in New-born Infants.

Knapp, on Certain Tumours.

Agnew, on a Method of Removing Secondary Cataracts and other Membraniform Obstructions from the Pupillary Region. (*See Abstract*, p. 239).

Prof. v. Graefe, on a more convenient Reading Glass, and a Binocular Refraction Metre.

Loureiro, on the Influence of Tobacco Smoking on the Diseases of the Eye.

Szokalski, on "Glioma Malignum Retinæ."

Delgado, on the Microscopical Examination of an Eye Blinded by Syphilitic Choroiditis.

The same, January and February, 1866.

Contents:—

Proposal for a Simpler and Better Series of Test Lenses: By Dr. W. Zehender. (*Abstract below.*)

On the Lymphatics of the Cornea: by Dr. Th. Leber.

Records of cases:

1. Embolia of a Single Branch of the Central Artery of the Retina. (*See abstract, p. 237.*)
2. Embolia of the Ascending Branch of the Central Artery of the Retina..
- 3 and 4. Peculiar Form of Progressive Amaurosis. (*See abstract, p. 240.*)
5. Pediculi Pubis on the Eye-lashes. (*See abstract, p. 239.*)
6. Remarkable instance of Recovery from an extensive Incised Wound of the Eye-ball. (*See abstract, p. 247.*)
7. Supernumerary Lacrymal Canaliculus.

PROPOSAL FOR A SIMPLER AND BETTER SERIES OF TEST LENSES.

[*Zehender's Klinische Monatsblätter, January and February, 1866.—By Dr. W. Zehender.—ABSTRACT.*]

DR. ZEHENDER, following the example of Burow and others, points out that the ordinary box of test lenses is not only costly, cumbrous, and inconvenient, but also that the lenses do not follow any definite rule of optical value. He proposes to substitute for the present test-case one containing only ten pairs of concave, and ten pairs of convex glasses, and measuring only about 8 inches by 6. He thinks such a series can be so planned as to supply every possible want.

The ordinary test-case supplied by Paetz and Flohr contains lenses of the following focal length in inches:—

2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, $5\frac{1}{2}$, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 26, 28, 30, 33, 36, 40, 45, 50, 60, 80, 100.

The only correct principle in this series is that the focal lengths do not increase by single inches throughout, but by an increasing number of inches as the numbers ascend. Still the intervals are quite arbitrary and irregular. For example, the difference between No. 80 and No. 100 is equal to a lens of 400 inches focal length; while the difference between 11 and 12 is equal to a lens of 132 inches; and that between 4 and $4\frac{1}{2}$ to a lens of 36 inches. These examples show that, in order to have a scale increasing by regular optical intervals, some of the higher numbers should be omitted, and that additional lenses should be introduced between some of the lower ones. It seems desirable to obtain a series, of which the optical strength should increase in arithmetical progression, so that the difference between the successive numbers should be the optical unit of the scale.

In determining the value of this optical unit various considerations of price and portability must be taken into account.

It is manifest that all intermediate focal lengths can be obtained by simple combinations, and that the resulting lens will always be expressed by a fraction which has for its numerator the sum of the numbers of the lenses used, and 48 for its denominator. Thus, a combination of No. 8 with No. 1, both being concave or convex, would be equal to $\frac{9}{48}$, or a focal length of $5\frac{1}{3}$ ". If one of the two lenses were concave and the other convex, as No. 8 concave and No. 1 convex, the sum of $-8 + 1 = -7$; and $-\frac{7}{48} = 6\frac{2}{3}$ " concave. Dr. Zehender furnishes a complete table of all the combinations—giving the focal length of each, and this table might be fastened into the lid of the box for reference.

For all ordinary purposes the unit $\frac{1}{48}$ affords sufficient accuracy. For cases in which a still finer determination is required, the addition of the lens of 96 inches (No. $\frac{1}{2}$) admits of extreme exactness. The combinations of two lenses will suffice for nearly all purposes; but the gaps that are still left may be supplied, if necessary, by using combinations of three.

The frame for these lenses differs from the ordinary one only in having a double groove instead of a single one; although Dr. Zehender has also employed a frame made by Paetz and Flohr, in which the second lens is held in a lateral clip, which can be turned aside at pleasure.

NOTE.—The addition to the case of two very thin discs of metal, the size of the lenses, and each perforated by a narrow slit, would render it sufficient for the examination of most cases of astigmatism.

EMBOLIA OF ONE BRANCH OF THE CENTRAL ARTERY OF THE RETINA.

[*Klinische Monatsblätter für Augenheilkunde*, January and February, 1866.—
ABSTRACT.]

Dr. Sämisch records the case of a man, 52 years of age, who came to him complaining of defective vision of the right eye, of such a kind that he could not see the lower part of any object that he looked at. The patient first discovered the defect two days previously, on waking in the morning; and a few days before that he had been using the right eye exclusively in shooting, so that its vision was then unimpaired. He connected his ailment with a gumboil that had formed about a right upper molar ten days before, and he had suffered no derangement of general health. Both eyes were emmetropic, and of normal acuteness of central vision, with presbyopia $= \frac{1}{24}$. In the right eye the lower half of the field of vision was almost entirely wanting. The defect was limited by a line passing upwards from the outer side, but nowhere reaching the horizontal diameter. Ophthalmoscopic examination of the inverted image showed the lower half ?

of the retina of a milky whitish colour, through which the choroid was but dimly visible. This turbidity of the retina was bounded by a line that followed a course upwards and inwards, touching the border of the optic disc, but keeping at some distance from the macula lutea. The disc and its vessels were normal, but the descending arterial branch was distended from the point where it passed off the disc. The distension affected a length of the vessel equal to about half the diameter of the nerve surface, and ended abruptly. From this point the branch was visible as a thin white cord, which contained blood only at one spot, and was seen with difficulty in the turbid retina, although the corresponding vein was very plainly visible and increased in volume. A complete examination of the general health of the patient gave only a negative result, and the circulatory system appeared to be entirely free from disturbance.

Notwithstanding the absence of any cause by which the formation of an embolus could be explained, Dr. Sämisch was of opinion that the case admitted of no other diagnosis. The ophthalmoscopic examination afforded absolute evidence of a limited affection of the vessel, and, except embolia, some disease of the arterial coat was the only possible cause of the condition. But no disease of the arterial coat would be likely to produce sudden vascular obstruction in a previously healthy eye, or to diminish the calibre of the vessel. Dr. Sämisch gave a guarded and unfavourable prognosis, on the ground that, even if the circulation were eventually restored, either collaterally or by removal of the obstruction, the complete arrest of the supply of arterial blood to the affected part of the retina would very speedily work irreparable changes in its condition. There was no indication for treatment, and the patient remained under observation. After ten days blood could again be seen in the peripheral parts of the occluded artery, and this blood gradually approached the centre. There was, however, no improvement in vision, and after two months the condition still remained unaltered.

Dr. Hirschmann records a very similar case to the foregoing, with the difference that the patient (an English nobleman, 55 years of age) had suffered during seven years from repeated attacks of articular rheumatism, and had a loud systolic murmur. The failure of vision had existed for six months when Dr. Hirschmann was consulted, and the condition was as follows. Manifest hypermetropia of both eyes, about $= \frac{1}{18}$ or $\frac{1}{24}$. Acuteness of vision, right about $\frac{1}{4}$, left more than $\frac{3}{4}$. With correcting lenses reads—right, Jaeger No. 5; left, No. 1. Left field of vision absolutely normal. Right, most of the lower half wanting. The defect is not bounded by a sharp line, but by an obscure belt, that is very narrow in the middle, and that increases in width on both sides, but most towards the inner. Measured at one foot

from the board, the field of vision extends five centimetres below the fixing point, somewhat lower on the inner, much lower on the outer side. In the defective part there is not a trace of perception of light. The loss of vision occurred suddenly, when the patient was stooping, and was attended by a sensation as of fire in the eye.

The ophthalmoscope showed that the ascending branch of the arteria centralis was obstructed on the nerve disc, and empty, or nearly so, beyond the point of obstruction. In one only of its twigs a very small thin column of blood was perceptible. No changes could be discovered in the optic disc or retina. As an experiment, Heurteloup's leech was applied three times, and produced an increase of central vision to $\frac{2}{3}$ rds, and perhaps a better filling of the partially obstructed twig in which the thin column of blood had been noted. There was not the slightest enlargement of the field of vision.

PEDICULI PUBIS ON THE EYELASHES.

[*Klinische Monatsblätter für Augenheilkunde, January and February, 1866.*]

Dr. P. Steffen reports the case of a child three years old, who had three or four pediculi pubis on the lashes of each upper lid, with crusts of their eggs and excrement. There were no parasites on the head or the eyebrows, and there was no clue to the source whence those present were derived. The use of red precipitate ointment soon destroyed them. Dr. Steffen has been told by other practitioners that such cases occur, but he has published this one because he *cannot find another recorded in ophthalmic literature, and because the fact was to him entirely new.**

ON A METHOD OF REMOVING SECONDARY CATARACTS OR OTHER MEMBRANIFORM OBSTRUCTIONS FROM THE PUPILLARY REGION.

[*Abstract in the Klinische Monatsblätter für Augenheilkunde, September to December, 1866.*—By Dr. C. R. Agnew, of New York. Read at the Heidelberg Conference, 1865.]

DR. AGNEW commences by describing his operation as follows:—

1. The patient should be in bed, lying on his back, completely narcotized by chloroform or ether, the eyelids held open by a spring speculum, and the pupil fully dilated by atropine. Let it be supposed that the right eye is the one concerned.

2. The surgeon, sitting behind the head of the patient, takes

* See "Ophthalmic Hospital Reports," vol. ii, p. 125.

a stop-needle in his left hand and introduces it through the cornea, on the nasal side, about a line from the sclera. With the point he penetrates the obstructing membrane near its centre, taking especial care not to injure the pupillary margin.

3. While the stop-needle, held immovably, fixes both the eye and the membrane, the operator makes a linear incision in the cornea on the temporal side, parallel with the margin and about half a line distant from it. A broad needle, a Beer's knife, or a lance knife, may be employed, and should be withdrawn with little or no loss of aqueous humour.

4. Through the linear incision a small sharp-pointed hook is carried into the anterior chamber, and its point is engaged in the same opening in the membrane as that of the stop-needle.

5. The membrane is now to be torn, and to be rolled round the hook, as far as possible, by a rotatory movement of the latter. When thus rolled, the hook and the membrane may be withdrawn from the eye together. When this cannot be accomplished, the membrane may still be torn widely open. After the hook is withdrawn, the stop-needle must be withdrawn also, and the operation is completed. A few drops of a solution of atropine (2 gr. to $\mathfrak{z}\text{j}$) should be applied.

The after treatment consists in the application of compresses moistened with cold water. The patient should be kept in bed, in a darkened chamber, for three days, and the eye carefully guarded for some time longer. The daily instillation of atropine is desirable.

Dr. Agnew believes that the use of the stop-needle, by fixing the membrane, prevents any hurtful traction upon the iris or ciliary body, and thus preserves them from danger of inflammation. He has also found the needle useful in performing iridectomy in cases of closed pupil from inflammation (the lens being absent); and in such cases he uses forceps instead of the hook. He related eight cases of secondary cataract in which he had operated with complete success, and without any evil consequences.

TWO CASES OF A PECULIAR FORM OF PROGRESSIVE AMAUROSIS.

By DR. L. HIRSCHMANN.

[*Monatsblätter für Augenheilkunde, January and February, 1866.*]

THE following cases are reported as examples of progressive amaurosis in which, when the central vision was already much impaired, the excentric vision remained almost intact; and the periphery of the field unbroken. In such a condition a single

examination of the patient would lead to a diagnosis of a stationary disorder of the optic nerve, and to a favourable prognosis as far as the increase of the malady is concerned.

CASE 1.—Herr S., 64 years of age, married, of good health, and the father of nine living, healthy children, had lead a steady and regular life. On the 18th of July, 1864, he sought advice on account of recent impairment of vision. Examination discovered nothing abnormal, beyond hypermetropia of about $\frac{1}{20}$, considerable presbyopia, and some diminution of the acuity of vision. The patient read No. 2 of Jaeger. The impairment of sight was attributed to the presbyopia, for which a suitable convex lens was ordered. The actual diminution of acuity was thought to be due to some hypermetropic astigmatism, which, however, was not accurately tested.

In April, 1865, the patient was seen again. He complained of a cloud covering every object that he looked at; while the surrounding objects were still clearly visible. With the right eye he read Jaeger No. 17, with the left No. 15. The field of vision was nowhere curtailed, and the patient could count fingers at the periphery on all sides. Lateral illumination shewed slight turbidity of the lens; but not enough either to conceal the fundus, or to account for the imperfect sight. The fundus presented nothing abnormal unless that the papilla was possibly whiter than natural. Rest, absence of all excitement, and a light nutritious diet were prescribed.

By the 3rd of July vision was still more impaired, and only No. 20 of Jaeger could be read with either eye. Excentric vision had not suffered at all, or only very little. In no direction, either by daylight or feeble lamplight, could any contraction of the field be discovered. The lenticular cloud had not increased, the papilla was decidedly more white, with a tendency to blue. The retinal vessels were somewhat small. A seton was placed in the back of the neck, and sublimate given in pills.

By the 24th of July the patient read words of No. 20 with difficulty with the right eye; and with the left had difficulty in deciphering the letters singly. On testing the field of vision with lamplight and dull black paper, contraction was evident on all sides, but least in the upward direction. The field of the left eye was divisible into three concentric portions, not sharply defined, but yet clearly distinguishable. In the centre, the individual letters of No. 20 (Jaeger) could scarcely be deciphered at 8 or 10 inches by good daylight; and vision was therefore about $\frac{1}{40}$ or $\frac{1}{50}$. This centre was encircled by a zone in which the acuteness of vision was more than relatively, almost absolutely normal. Fingers could be counted in it at one foot. Beyond, in the outer zone, nothing could be seen by lamplight; but in good daylight movements of the hand through an extent of six

inches were barely perceptible. In the right eye the central vision was nearly as much impaired as in the left, but the peripheral vision was less affected. In both eyes the atrophy of the nerves was clearly visible. There were no pains in the head or spine, no impairment of any other sense, or of the mental faculties. The gait is somewhat feeble. Pills, containing nitrate of silver, were prescribed.

By the beginning of September the large letters at the heading of a newspaper could only be deciphered with difficulty at one inch and a-half. A light could not be seen at the fixing point, but became perceptible when moved away in any direction.

CASE 2.—Adam B., 47 years old, labourer, applied on the 13th of April, 1865, complaining that all objects looked at were obscured by a cloud. This cloud appeared gradually, and constantly increases in thickness and in extent. The patient could read with the left eye letters of No. 20 at 8 inches. With the right he also read No. 20, but with much more difficulty, and only at 2 or 3 inches. He counted fingers with the right at 5 inches, with the left at 8 or 9. In the field of vision no peripheral contraction could be detected on either side; and excentric vision was almost normal at the extreme limits. The ophthalmoscope shewed nothing remarkable. The papillæ appeared somewhat pale, the vessels not particularly slender, the media perfectly transparent. The patient is in good health, but suffered a short time before from persistent headache, which has now ceased. Has used spirits and tobacco very moderately. A seton was put in his neck, and iodide of potassium given internally.

On the 16th of July the patient came again. He could then scarcely count fingers with the right eye at four inches, with the left at one inch. With the left he deciphers letters of No. 20 with difficulty at four inches. The field of vision not contracted on either side, either by day or lamplight; but the excentric vision considerably enfeebled. When the left eye is covered, the fixation with the right is no longer central. The ophthalmoscope shews that the papillæ are somewhat blueish, the arteries very thin, the veins somewhat thicker.

Dr. Hirschmann remarks that these cases were clearly examples of progressive amaurosis, and states that he perfectly remembers to have seen a third case of the same kind, of which he did not keep notes sufficient for an accurate report. He thinks that they throw much doubt upon the value of the absence of contraction of the field of vision as a basis for a favourable prognosis as far as regards the extension of the disease; and that, notwithstanding the absence of contraction, the prognosis should always be extremely guarded.

TITLES OF PAPERS PUBLISHED IN ARCHIV. FÜR OPHTHALMOLOGIE, VOL. XI,
1865.

First Part.

Contents :—

- Researches on the Course and Relations of the Blood-vessels of the Human Eye : by Dr. Thos. Leber.
- Contribution to the Records of Tumours (with an illustration) : by Dr. M. Landsberg.
- On the Treatment of Muscular Asthenopia : by Dr. M. Landsberg.
- On the Histology of the Eye : by Dr. Carl Ritter.
- On the Acuteness of Vision in Astigmatics : by Dr. L. Kugel.
- On Flap Extraction of Cataract and on the Use of Chloroform : by Prof. J. Jacobson.
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- On Separation of the Choroid : by Dr. Iwanoff.
- Contribution to the Treatment of Hard Cataract : by Dr. Gaston Braun.
- On Persistent Pupillary Membrane and Polycoria : by Prof. Alfred Graefe.

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- On some Conditions of Binocular Vision in Strabismus, with reference to the identity of the retinæ : by Prof. Alfred Graefe.
- On the Pathological Anatomy of Anterior Scleral Staphyloma : by Dr. Schiess Gemuseus.
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- On the History of the Operation for Hard Cataract : by Dr. Joh Bapt. Ullersperger.

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- On Modified Linear Extraction : by Prof. v. Graefe.
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- On the Action of Various Medicines on the Palpebral Conjunctiva : by Dr. Prosoroff.
- Disease of the Eyeball in Epidemic Cerebro-spinal Meningitis : by Dr. Jacobi.
- On the Anatomy and Physiology of the Zonula Zinnii : by Dr. Hjalmar Heiberg.
- On the Theory of Astigmatism : by Dr. H. Kaiser.

ON OBTAINING AN INCREASED EFFECT BY THE STRABISMUS
OPERATION.

[*Klinische Monatsblätter für Augenheilkunde.* By Dr. Knapp. (Read at the Heidelberg Conference, 1865.)—ABSTRACT.]

THE author points out the inconvenience of being compelled to operate more than once in cases of strabismus with considerable deviation. He speaks separately of two conditions:—1st. Considerable deviation without insufficiency of the antagonist; 2nd. Considerable deviation with insufficiency of the antagonist. In cases of extreme internal strabismus, it is seldom necessary to depart from the common practice, of a simple tenotomy of both eyes. Instances occur, however, especially in adults, notwithstanding good action of the externus, in which it may be necessary to operate even three times. In such instances the author practises a sufficient division of the rectus internus, and then passes a thread from the external margin of the cornea to the external commissure of the eyelids. He proceeds in the following manner:—The lids being held apart by the ordinary spring, a fine curved needle, carrying a thread of China silk, is passed through the conjunctiva, close to the margin of the cornea, from above downwards, for a distance of from one to two lines, accordingly as the conjunctiva is firm or lacerable. The needle is then carried through the conjunctiva and skin of the lids, from within outwards, just beyond the external commissure. The spring is removed, and the two ends of the thread are tied together, with sufficient traction to draw the eyeball outwards as much as may be desired. In this way is obtained the great advantage of keeping the squinting eye fixed in one position during the union of the tendon. The thread may remain one day, or sometimes two days; and the author has never seen supuration or inflammation from its presence. Formerly he used plaster to fasten the thread instead of transfixing the eyelid, but the power thus obtained was insufficient.

In cases of extreme external strabismus, also without insufficiency of the antagonist, it is well known often to be necessary to operate three or four times. The author proceeds in like manner as with the first variety, but inserts his thread differently. It is furnished with a needle at each end. The necessary division of the external rectus being effected, one of the needles is made to enter the conjunctiva close to the inner margin of the cornea, and a line and a half above the horizontal meridian. The point is then made to emerge on the horizontal meridian. The second needle is entered a line and a half below the meridian,

and is brought out at the aperture made by the first, so that the middle of the thread lies upon the eyeball, external to the conjunctiva, and is not liable to tear out. The two needles are then carried through the eyelid at the inner commissure, very near together. They should enter just above the caruncle, and emerge on the skin two lines nearer the nose. By simply drawing the threads and tying them together, any degree of inversion may be obtained. The author prefers to have about a line and a half of adduction, since experience shows that this disappears; and that, if it be not obtained, a certain degree of divergence will ultimately be left uncorrected. The thread should be removed on the day after the operation; and, in this manner, an external squint of three lines may be cured by a single operation. The author formerly used only one thread, but found that this had a tendency to roll the eyeball upwards as well as inwards.

In cases where the antagonist muscle is paralysed, either from disease or from displacement in a former squint operation, Dr. Knapp uses his threads as auxiliaries to Mr. Critchett's operation for bringing forward the disabled muscle. In such cases he sometimes obtains his bearing from the ligatures used to bring the muscle forward, instead of from the ocular conjunctiva itself. In all cases he speaks very highly of the practical utility of his plan.*

ON THE PATHOLOGICAL ANATOMY ON ANTERIOR STAPHYLOMA OF THE SCLEROTIC (SCLERECTASIA ANTERIOR, STAPHYLOMA CORPORIS CILIARIS).

[*The Archiv. für Ophthalmologie*, Vol. ix, Part II. By Dr. Schiess-Gemuseus, of Basle.

FOUR cases are related:—

CASE 1.—A small partial staphyloma of the sclerotic through the ciliary body.

CASE 2.—A total anterior staphyloma of the sclerotic through the ciliary body; destruction of the lens-system; wrinkled and pigmented retina.

CASE 3.—Advanced anterior sclerectasia through the ciliary body, with general ectasia of the eyeball.

CASE 4.—Total ectasia of the sclerotic; advanced atrophy of choroid and retina; deposit under the superficial epithelium of the cornea.

To this paper two lithographic plates, shewing the relation of the parts on a much enlarged scale, are appended. A third

* The use of sutures for similar purposes and almost exactly similar methods to those proposed by Dr. Knapp, has long been practised at Moorfields. More especially are they valuable after Critchett's operation, for bringing the internal rectus forwards.—Eds.

figure represents a magnified section of the retina from Case 2. These illustrations are well executed, but the lettering does not correspond quite so accurately with the description as the reader could wish.

TWO CASES OF INTRAOCULAR CYSTICERCI WITH DISSECTIONS.

[By Dr. J. Jacobson. *Archiv. für Ophth.*, Vol. xi, Part II.—ABSTRACT.]

THE subject of the first of these was a healthy woman, aged 20, who had never suffered from worms. She came under care on December 28, 1864, having suffered for a short time from pain in the brow and a fixed black spot before the right eye. Her sight, with the exception of this scotoma, was perfect, and the globe was not inflamed. Symptoms rapidly ensued, and on the 8th of February the eye was quite blind, and enucleation was performed. The patient had in the interval had much pain in the eye, and the iris, vitreous and other parts had participated in general inflammation. The ophthalmoscope had revealed the position of the parasite when the patient first applied, and whilst the vitreous was clear. It was then between the choroid and retina.

In the second case, the patient was a girl, aged 18, who was, when first she consulted Dr. Jacobson, already blind. Her first symptom had been, as in the previous one, a fixed, black spot. Some inflammation of the eyeball had occurred, and the globe was already of diminished tension. There was some hypopy on a fixed pupil, and the vitreous was too opaque to permit of inspection of the fundus. Enucleation was performed. A cysticercus was found beneath the retina. Dr. Jacobson states that he believes this to be the fourth example of a sub-retinal cysticercus causing the destruction of the eye which has been recorded. One of them will be found in this journal, third part, page 324, by Mr. Soelberg Wells (eye removed by Mr. Bowman).

Dr. Jacobson's cases are accompanied by some very interesting comments, and illustrated by several wood-cuts.

ON THE TREATMENT OF HARD CATARACT.

[By Dr. Gustav Braun, of Moscow. *Archiv. f. O.*, Bd. xi, 1, p. 200.—

ABSTRACT.]

DR. BRAUN entertains the opinion that the recent modifications of cataract extraction, highly calculated as they are to allow of the exit of the lens with the smallest possible injury to the other structures of the eye, and fruitful as they have been in obviat-

ing certain dangers, such as sloughing of the flap and purulent irido-choroiditis, have rather served to divert attention from other dangers, and from the treatment necessary on their account. He relates that, at the commencement of his career as an operator, he performed extraction in the old way, then from six to eight weeks after a preliminary iridectomy, then after an iridectomy that made one step in the operation. By all these methods his results were extremely bad, insomuch that he lost 45 per cent. of the eyes operated upon. He then pursued the method of Dr. Jacobson, but with the same ill fortune; and this ill fortune was fully shared by his colleague, Dr. Rosander. Careful observation shewed him that the greater part of cataractous eyes brought to him presented all those indications that suggest an unfavourable prognosis. They were mostly deeply seated, with pupils sluggish and resisting atropine, with soft, inelastic, collapsing corneæ, with thin and fragile irides. These peculiarities were seen not only in old and feeble persons, but also in the middle-aged and strong-looking. He leaves the question how far these conditions were due to local and climatic influences; and goes on to say that his bad results were not due to any excess of cases of acute inflammation, but to chronic degenerative changes in the iris, sometimes with periodical passive hæmorrhages into the vitreous, leading to atrophy of the globe. Sloughing of the cornea, and purulent irido-choroiditis were not more common in his hands than in those of other operators. Considering the ordinary character of the morbid processes, he administered various medicines to his patients, such as valerian, castor, quinine, and ergot. From these little benefit was derived; and he then tried the effect of alcoholic stimulation, not waiting for the signs of mischief, but anticipating them. Every patient received about an ounce of brandy or sherry immediately after the operation, and repeated this dose twice daily for three days, the compressive bandage being applied. The result was greatly to improve his statistics; so that, after continuing this practice for a year, he had only 6 per cent. of eyes entirely lost, and 3 per cent. more with imperfect vision; these failures being all due to the ordinary forms of acute inflammation. The absolute numbers are not given. The paper winds up with some details of his manner of operating. He practices flap-extraction, with an iridectomy prior to the removal of the lens. He makes his flap in the limbus conjunctivæ; and thinks that chloroform is "unnecessary and injurious."

REMARKABLE CASE OF RECOVERY FROM AN EXTENSIVE INCISED
WOUND OF THE EYEBALL.

[By Dr. Steffan. *Klinische Monatsblätter f. A.*, January and February, 1866.—ABSTRACT.]

On the 2nd of May Dr. Steffan was called to a girl, nine years

old, who had injured her right eye a few hours before by a blow from a splinter of glass. By the time of his arrival, the free bleeding from the external wound had ceased, the eyelids were closed, and there was no pain. On carefully separating the lids he saw an incised wound, commencing on the cornea, about a line and a half from its inner margin, and just within the area of the pupil, and extending horizontally to the root of the nose. This wound had gone completely through the cornea, causing prolapse of the iris. It then divided the other coats of the eye, sclera, choroid, ciliary muscle, and retina for a length of about four lines; so that the eyeball must have been rolled outwards when the injury was received. Proceeding in the same direction, the wound passed on through the caruncle and lachrymal sac to the side of the nose, dividing all the soft parts down to the lachrymal and nasal bones. At every attempt to open the eyelids the wound gaped, and gave exit to vitreous humour; the eyeball of course had collapsed. The absence of any indication of a foreign substance within the eye induced Dr. Steffan to aim chiefly at the closure of the scleral wound, so as to prevent further loss of vitreous humour. For this purpose a compressive bandage was applied, and a bladder of ice over it, and complete quietude was enjoined. In a few days, without any kind of reaction, the wound in the sclera had healed so perfectly as to be almost invisible, the anterior chamber had refilled, and the eyeball was restored to its natural dimensions; so that nothing appeared but a simple corneal perforation, with prolapsus iridis. The prolapsus was snipped off, and a slight pupillary exudation was counteracted by the fullest possible dilatation with atropine. The only visible trace of the injury was an adherent leucoma, a line and a half in length, on the inner side of the cornea. When the healing was complete vision was perfectly natural. The wound of the lachrymal sac left a slight fistulous opening in the inner canthus, but this produced no inconvenience.

The case much resembles one recorded by von Graefe in the *Arch. f. O.*, Bd. 1, 1 S. 406. In this, however, v. Graefe withdrew from the eye, through the scleral wound, a splinter of glass eight lines in length, and three lines broad at its broadest end. The patient (a boy) recovered perfect vision.

THE TREATMENT OF MUSCULAR ASTHENOPIA.

[By Dr. Landsberg, of Danzig. *Arch. f. O.* Bd. xi, 1, p. 69.—ABSTRACT.]

DR. LANDSBERG describes several cases of severe muscular asthenopia (insufficiency of the internal recti) successfully treated by the application of the continuous galvanic current. In some of them, displacement of the external recti by tenotomy had been practised with little benefit, and the patients were disabled from

following any occupation that required ocular fixation. The paper gives minute details of twelve cases, all of which are said to have been cured. The mode of application was to place the negative (carbon) electrode of a Stöhrer's battery in the neighbourhood of the inner angle of the closed eyelids, and sometimes directly upon the conjunctiva, and the positive (zinc) electrode close to the root of the nose. The battery used was composed of from four to eight cells, and the duration of each application did not exceed thirty seconds. The applications were at first repeated daily, and at more distant intervals, as the beneficial effect became pronounced. Upon the *modus operandi* of the galvanism, whether by improving the nutrition of the muscles or otherwise, the author expresses no opinion.

NOTE.—Stöhrer's batteries (of Dresden) are imported by Pratt, 420, Oxford Street. For this purpose the continuous current only must be used (that furnished by cells alone, without an induction coil). The best electrodes for the muscles of the eye are fine metallic rods, the size of knitting needles, covered with the smallest possible coating of fine sponge at their tips.

ADDITIONAL LACHRYMAL CANALICULUS.

[*Klinische Monatsblätter*, January and February, 1866.—ABSTRACT.]

DR. STEFFAN describes a supernumerary canaliculus in the right lower eyelid of a patient who consulted him about some other matter. The second punctum was a line below and to the outer side of the normal one. It could not be determined whether the second canaliculus entered the lachrymal sac by an independent opening, or indirectly through its fellow.

